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RACE DECADENCE

RACE DECADENCE

*An Examination of the Causes of Racial
Degeneracy in the United States*

BY

WILLIAM S. SADLER, M.D., F.A.C.S.

PROFESSOR AT THE POST GRADUATE MEDICAL SCHOOL OF CHICAGO; FELLOW OF
THE AMERICAN COLLEGE OF SURGEONS; SENIOR ATTENDING SURGEON
TO COLUMBUS HOSPITAL; DIRECTOR THE CHICAGO INSTITUTE OF
RESEARCH AND DIAGNOSIS; FELLOW OF THE AMERICAN
MEDICAL ASSOCIATION; MEMBER OF THE CHICAGO
MEDICAL SOCIETY; THE ILLINOIS STATE MEDICAL
SOCIETY; THE AMERICAN PUBLIC
HEALTH ASSOCIATION, ETC.

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Preface

IMPORTANT as is the health of the individual — personal hygiene, still more important is the health and vigor of the nation — race hygiene. Human society has certainly not reached a very high plane of unselfishness and altruism when its scientific energies are almost wholly consumed with the betterment of the individual; and yet, in the recent past, the great efforts of preventive medicine in the development of modern hygiene have been devoted almost exclusively to the improvement of the individual. Of course the public, as a whole, benefits by all these efforts looking toward the prevention of disease and the improvement of human health and efficiency; but has not the time come when society should look out upon a horizon broad enough to take into consideration the unborn generations in all our plans looking toward human betterment?

It must not be inferred from the title of this work that the author is a pessimist. This book deals with the evidences of race decadence, but is to be followed by volumes dealing with race betterment, and presenting the encouraging and more optimistic side of this momentous question. The author believes in a great destiny for the human race, and is in no sense a pessimist.

It is our purpose carefully to examine the causes and influences which are at work among civilized peoples, which contribute more or less to a possible deterioration of the "stock" of the white races; and also to present an outline of those plans and propaganda which, in the opinion of the

author, may tend to combat these deteriorating influences, and otherwise counter-work those conditions which we believe to interfere somewhat with normal human progress; and in subsequent treatises to present a more definite program which we believe will contribute immensely to the immediate improvement of the mental and moral fiber of the white races in general, and the American people in particular.

It is the plan of this book to discuss this question of race decadence under two heads:

1. *Physical Decadence*—that is, the question of physical hygiene as concerned in race efficiency and in particular with reference to the alarming increase in recent years of cancer, venereal diseases, and the so-called “old-age” disorders.

2. *Mental Degeneracy*—the apparent increase in mental and nervous diseases—the vast prevalence of feeble-mindedness, epilepsy, insanity, etc., as they threaten the integrity and stability of the American people.

The author is well aware of the fact that there are many troubles in the body politic; that there are many problems before the American people for solution, which are not discussed in this thesis. We are quite alive to our political, social, and industrial difficulties, and we are not blind to the fact that we have a peculiar race-and-color problem of our own, one which cannot be touched upon in a book with the limitations of this work. Nevertheless, notwithstanding all these many questions now pressing themselves upon the public for solution, we believe that in the immediate future, even if we succeed in solving in the most satisfactory manner our present social and labor difficulties—even if the country should become well-nigh utopian as regards present troubles which are pressing for solution—still there would confront

us the great problems which form the topics for discussion in the two sections of this book. These difficulties which threaten the integrity of the race, and jeopardize the continuity of the nation, would still present themselves for adjustment and solution.

In Part I we undertake to show the great waste from unnecessary and preventable disease on the one hand, and the tremendous national loss by premature deaths on the other; to point out specifically those diseases and causes which undermine the health of the people and carry away so many of our fellow-citizens prematurely; to show that many of these maladies have a hereditary basis; and at the same time to propose those practical suggestions which the modern methods of preventive medicine have to offer as a remedy for this unnecessary and appalling wastage.

In Part II we undertake to present to the reader a picture of the intellectual catastrophe which awaits the American people if they go on for an indefinite period unmindful of, and indifferent to, the menace of feeble-mindedness and other forms of mental deterioration which, in common with epilepsy and insanity, loom so large upon the social horizon of the present day; and in connection with the presentation of these statistics and a statement of these known facts, to offer practical suggestions looking toward a humanitarian control of these race-destroying strains of the human family which have gained such a foothold among the people of this fair land.

While the author is in no wise immediately alarmed over the threat of the conditions which confront us, and which he has endeavored to portray in this book; while he is not an alarmist, and has great faith in the future greatness, attainment, and development of the American people; at the same time he does most sincerely believe that on the American continent and in the present American society and govern-

ment, the civilization of the white race is destined to make its last stand.

And, therefore, while not considering these matters in too grave a light, but at the same time taking the mission which he has endeavored to fulfil in this and subsequent volumes quite seriously; it will be apparent that if but a little bit has been contributed to the clarification of these basic problems which confront the nation; if but a mite has been added to aid in solving the menacing difficulties discussed in this work; if but even a trifle has been added to the final turning of the tide of evil influences which jeopardize the white races in general and the American stock in particular, then will we have been repaid manifold for the research and other efforts entailed by the writing of this book.

WILLIAM S. SADLER.

533 DIVERSEY PARKWAY, CHICAGO,
October 1, 1921.

CONTENTS

PART I

PHYSICAL DECADENCE, OR, THE INCREASE OF CERTAIN BODILY DISEASES

CHAPTER	PAGE
I What Ails Uncle Sam?.....	I
II Our First National Health Inventory.....	12
III Postponing Your Funeral.....	31
IV Sickness in the United States.....	49
V Triumphs and Failures of Preventive Medicine	71
VI The Cancer Problem.....	92
VII The White Plague.....	102
VIII The Great Black Plague.....	110
IX Increase in "Old-Age" Diseases.....	132
X Heart Failure, Hardened Arteries, and Bright's Disease	142
XI Causes of "Old-Age" Disorders.....	154
XII Treatment of "Old-Age" Disorders.....	165
XIII The Laws of Health in a Nutshell.....	181

PART II

MENTAL DEGENERACY, OR, THE INCREASE IN MENTAL AND NERVOUS DISORDERS

XIV Are We Becoming a Neurotic Race?.....	195
XV Is Insanity Increasing?.....	212
XVI Feeble-Mindedness	233
XVII The Moron Problem.....	253

CHAPTER	PAGE
XVIII Epilepsy and Sex Perversion.....	263
XIX The Backward Child.....	272
XX Feeble-Mindedness in Relation to Crime.....	280
XXI Feeble-Mindedness in Relation to Vice and Poverty	299
XXII Borderland Defectives	316
XXIII The "Aristocracy of the Unfit".....	329
XXIV Desirability of Restricting the Unfit.....	344
XXV Looking Facts in the Face.....	368
Appendix A — Statistical Tables	377
Appendix B — Economic Losses from Sick- ness	392
Appendix C — Diet Lists	404

ILLUSTRATIONS

FIGURE		PAGE
1	Examining drafted men	14
2	Results of examining supposedly well people . .	22
3	Are the giants disappearing? Captain George Auger, 8 feet 4 inches tall, and Lady Little, but 30 inches high	24
4	Graphic showing principal causes of death in the United States	37
5	Graphic illustrating the increased and the decreased death-rates of certain common diseases	82
6	Showing deaths from different forms of cancer .	94
7	Sleeping-porches are great promoters and preservers of health.	106
8	Organisms causing the Great Black Plague . . .	112
9	Graphic showing increase in death-rates from the four leading diseases, covering a period of eighteen years	134
10	Forms of cell degeneration in the human body. .	137
11	Exercises adapted to moderately high blood-pressure	166
12	Graphic showing increase in insanity in the United States	218
13	Typical institution for the feeble-minded	234
14	Scheme of classification of mental abnormalities .	236
15	An epileptic colony	264
16	Apparatus used in testing abnormal children . .	274
17	A typical feeble-minded family	306
18	Ellis Island — the gateway of the immigrant . .	358

PART I
Physical Decadence
or
The Increase of Certain Bodily Diseases

Race Decadence

CHAPTER I

WHAT AILS UNCLE SAM?

THE author is not oblivious to the many pressing problems and difficulties which confront the American people at the present time, and which clamor so loudly for immediate attention.

The answer to the question, What ails Uncle Sam? calls for a sweeping glance around the social horizon; for an intelligent survey of our industrial front; for a careful consideration of our political tangles and our international relations. But with all our study, and after all our efforts to solve these things, the fundamental national ills which are discussed in this work still remain; and so, while we go about the task of adjusting and settling these various questions of vital concern, we believe we will be directly aided in forming a proper perspective if, at the same time, we will take into consideration some of those fundamental and basic weaknesses which are inherent in our present-day social organization and racial composition. In other words, if we can get a clearer view of this background of permanent problems which challenge our united efforts, and which must some day demand our combined energy for solution—with this enlightening background of facts and factors—will we not be all the better prepared and equipped to undertake the successful adjustment of the

numerous, but transient social, political, and economic questions, which so insistently crowd to the front of the stage and which so loudly clamor for immediate attention?

OUR ECONOMIC PROBLEMS

The perplexities growing out of the economic disturbances of war, and the subsequent era of the High Cost of Living, with all their associated problems; the difficulties produced by the rapid depletion of the western farm lands which were fresh and new but a short time ago, and which have been worked year after year without much thought of fertilization or scientific crop rotation; the continued drift of the population from the country to the city, with its resultant depletion of the agricultural classes; the problem of eliminating the unnecessary middleman and other lost motion between the producer and the consumer; the function of the parcel post and the automobile in our future industrial organization; yes, these and many other similar questions are up for consideration in this trying era of reconstruction, and we will, in due time, solve them all. Whatever the difficulties and complications, we will find an ultimate way out. But we believe that a clear view of the underlying biologic facts will greatly help us to a more comprehensive understanding of these associated surface problems of an economic and political nature—and indirectly contribute something to hastening their satisfactory settlement.

THE INDUSTRIAL SITUATION

We have extraordinary industrial difficulties to overcome in the immediate future, not merely questions dealing with the supply of labor and underproduction; not merely the stress and strain to which our industries are now subjected as a result of the vast destruction associated with the World War and the subsequent slowing down of production

throughout the world; but we also have our own long-time chronic and now acute problems of labor and capital. The questions of equity involved in the administration of vast industries; the future course and evolution of the gigantic capitalistic interests on the one hand, and the labor unions and organized workers on the other, interest and concern every American citizen. But, as we shall see, the final solution of many of these industrial difficulties is bound up with the proper understanding of some of these vital and fundamental biologic themes which constitute the basic discussions of this volume.

If we can do something immediately and directly to advance the health and vigor of the American people; if we can set in motion influences which will certainly improve both the quantity and quality of the next generation; if we can do something to lessen the flood of inferior immigrant stock, which deteriorates our national worth — if we can do only a little to realize some of the hopes of better things, outlined in this work — then will we also have done much to improve our industrial situation and to better our whole social and economic status. Our social questions are not going to be finally settled by a generation that refuses to study and know the laws of human heredity, and which closes its eyes to the scientific principles of race betterment and national uplift.

OUR POLITICAL SITUATION

There are many problems of a political nature which the American people must settle one way or another in the next few years; not merely the question of the League of Nations and our future position as regards our foreign relations and international obligations; not only the question of whether or not we shall have universal military training; not merely the questions of improved municipal administration and advanced state government; but also those propositions which

have to do with government ownership and government regulation. Are we going to socialize great industries like the railroads, or are we going to regulate them in a business-like manner? Are we going to continue a democracy where the majority rule, with universal suffrage, or are we going to experiment with new and untried theories of political government which some alien agitator may seek to force upon the country? All of these and many other related political problems cry out for solution — and they must have attention; but, if the reader will carefully consider the studies of this work, particularly those chapters in Part II, much will be found, we believe, which will help the average American citizen to look at these things in a broader and more far-reaching light than that in which we have hitherto considered them; and, in other ways to look at our past, present, and future from a racial standpoint — from such a standpoint as promises to help us in finding a probable and lasting remedy for some of our many present political difficulties. Today we need politics vitalized by principles, and politicians permeated with fundamental facts and energized by the tested truths of biologic science.

SOME OF OUR SOCIAL QUESTIONS

The dilemma which confronts us as a nation today has not merely to do with the difficulties of making this country safe for democracy, but also includes those many problems which we commonly group under the head of “social development” — welfare work. The educational situation, the future of the public-school system, the education of immigrants whom we allow to come within our gates; the Americanization of our foreign population — present and future; the question as to whether or not the mental caliber of our public-school teachers is to be allowed to decrease from decade to decade — because we are too shortsighted to pay them a liv-

ing wage. These and many other questions, not to mention prohibition and the stamping out of drug habits, all call for a clear understanding of applied eugenics. So, when these social problems knock at our door for consideration — some of them clamor for immediate attention — we believe that the discussions of Part II of this book (those chapters dealing with ultimate race betterment, and which point out the necessity for the American people to do something about feeble-mindedness and insanity) will help the reader to form a more intelligent opinion respecting these numerous problems, and thus be in a position to contribute something toward a more complete and satisfactory settlement of many of these harassing social difficulties.

A better knowledge of the accepted laws of heredity, together with a more complete understanding of the comparative value and influence of race and education — of nature and nurture — would greatly assist us in solving some of our social questions, while at the same time we would be helped in our future planning for the betterment of the citizenry of coming generations. The time has come to requisition science and draft scientists to help us in the great battle for social regeneration and racial advancement.

THE MORAL OUTLOOK

There is no doubt but that America needs a moral awakening. The World War probably did not last long enough to give us our baptism of fire; we no doubt have much unconsumed dross as a nation — dross from which we sadly need to be purged. We stand in need of a great spiritual awakening — a real national revival. Grave moral problems of vice and its regulation and control on the one hand, and the present and future status of the church as a source of spiritual inspiration and teaching on the other, challenge all that is best in the American people to arise and make a powerful,

twentieth-century re-statement of religious truth — so to illuminate current Christianity as to turn religion into a great practical and spiritual searchlight that will become at once our guiding star of national destiny and at the same time unfailingly attractive to that great body of honest, earnest, and truth-loving people who constitute the present backbone and the future hope of the American Republic.

Before we can comprehend the pressing importance and serious aspect of our moral problem, we must know something of the laws of heredity — we must understand the significance of increasing mental deterioration. We must recognize the fact that moral character is largely a matter of heredity. A knowledge of the comparative influence of heredity and environment, in the development of character and citizenship, will assist us in the development of a broader and saner perspective — larger viewpoint — which will, in turn, greatly help us in formulating and executing our larger and more far-reaching plans for spiritual uplift and moral betterment. In other words, the racial and eugenic discussions of Part II of this book have a direct bearing on almost every phase of our many social and moral problems; and a better understanding of these biological facts promises greatly to assist us in rightly settling our numerous questions of social and moral betterment.

These biologic facts of race, heredity, and inborn character constitute the very foundation and background which every intelligent crusader for truth and righteousness must possess, in order to attain that efficiency and permanent success which such a good and glorious cause so worthily deserves. The time has come for science and “uplift” to join hands.

Modern reform must divest itself of superstition; the enthusiasm of ignorance is a false inspiration; the uplift movement built on error is a delusion; and the hope of an improved and glorified citizenship can only be realized by

facing the facts — by courting the truth and turning on the searchlight of scientific knowledge.

THE NATION'S HEALTH PROBLEMS

As a nation, we have many health problems not discussed in those chapters which constitute Part I of this book. There are still other phases of personal hygiene, public hygiene, and industrial hygiene which press upon us for immediate study and solution. We have a great call to the Southland looking toward the improved health of the southern people; many of our cities are in need of better departments of public health, and the nation itself is in sore need of a better co-ordination of its present health-promoting facilities. There are many phases of disease prevention which should be strengthened and extended. We do not yet keep a national set of books on health — only a part of the country has registration of "vital statistics." There ought to be a Secretary of Health in the President's cabinet. We must give earnest attention to the control of periodic epidemics, such as those of the "flu" which have so recently been with us. These and many other health questions are just as important as those taken up in this volume, but it was our purpose at this time to concentrate the reader's attention on those important phases of disease prevention which have been so neglected and which concern us all in two special respects: first, these diseases are on the increase; and, second, we are not going to make much progress in overcoming these "habit diseases" without hearty and intelligent cooperation on the part of individual citizens. Health, vitality, and longevity are very largely dependent on heredity. So, notwithstanding these and numerous other health needs of the nation, the most serious problems after all, from a health standpoint, are those outlined in the first chapters of this work; and, important as is the question of physical health,

still more important are those questions of mental soundness and racial integrity which are discussed in Part II.

RACE HYGIENE

After all, we must acknowledge that whatever may be our political, industrial, social, and economic difficulties; whatever even our health and hygiene problems — nothing is of really more import than the study of race hygiene — race betterment. Eugenics is the painstaking examination of all the facts and truths which we possess, which will help us on the one hand to stay the march and multiplication of those influences and individuals which weaken and deteriorate the race; while on the other hand it enables us to lend aid and give assistance to every cause and every individual planning and tending to improve, uplift, and strengthen the human race as a whole, and the superior races in particular.

Hygiene is a selfish cause, which aims to improve the present generation; eugenics is a truly altruistic enterprise which looks ahead and works for the improvement of the next and future generations.

Is the quality of American citizenship deteriorating? Does the melting-pot really melt? Has Uncle Sam admitted to our shores thousands — even millions — of immigrants who can never become typical, happy, and prosperous American citizens? Is it a fact that the children of many of these un-American aliens can never become good Americans except through the slow process of intermarriage, and extending through several generations? Is it a fact that race counts for more than education, environment, and even democracy in determining the character of an individual and the quality of his citizenship? Is it, or is it not, a fact that there are certain races and types of individuals who are so constituted by nature that they can never rise to an appreciation of American ideals, and can never reach an intelligent

comprehension of American institutions? If these questions can be even partially answered in the affirmative, then the time has come—the hour has struck—for every real American seriously to take up the study of these fundamental facts of national health and racial hygiene, and seek really to understand what ails Uncle Sam!

THE REMEDY

We believe that Uncle Sam is suffering from a complication of national ills; we believe this nation is afflicted with a combination of acute organic diseases and chronic functional disorders. We believe the American Commonwealth is still sound at heart—that it possesses vast inherent power of vital resistance and recuperative energy; but blind national optimism will only serve to cloud the diagnosis and confuse the treatment. Ignorant enthusiasm—false patriotism—will only delay the recovery and interfere with the rapid convalescence.

Quack cure-alls of fake reform and false politics will only temporarily ease the social pain and sooth the national conscience. Beautiful and deceptive political theories like the doctrine of the melting-pot only serve to deceive and delude us as long as peace and prosperity remain undisturbed. The false gospel of socialism, or the disappointing doctrines of “strikes” and “violence,” only delude us for a time. The mirage of the Bolshevik may fascinate for a moment, but it fails to quench the thirst and satisfy the hunger of a distraught people, or to comfort and strengthen a war-torn world.

Reformers, politicians, organizers, and agitators have had their day—their well-meant and ingenuous schemes have not yet brought us into the promised land of peace and plenty. All our efforts to improve the national ills and alleviate the sufferings of the American people have been too

largely directed to the treatment of symptoms—ⁱisolated manifestations of the underlying diseased conditions. We have failed to look the facts in the face and lay the ax at the root of the tree.

Has not the time come to begin the real examination of Uncle Sam and his ailments in the spirit of a scientific investigator who aims to go to the bottom of the difficulty and to discover the actual disease present? And as fast as we do detect the causes of the nation's trouble let us fearlessly apply the known remedies which history, political science, economics, eugenics, hygiene, and ethnology may afford.

The hour has come when the facts of organic evolution and the biologic teachings of modern eugenics should be applied to the great problems of the national administration as relates to immigration, labor and capital, sanitation, social reforms, the colored-race problem, poverty, and the other great questions of national uplift and race betterment.

SUMMARY OF THE CHAPTER

1. A better understanding of the basic race problems concerned in American society would contribute greatly to a better solution of our industrial and economic problems.

2. A more complete biologic knowledge of the laborer might greatly help the statesman and the sociologist in solving the labor problem.

3. Many of our political problems could be more intelligently handled and more permanently settled if our politicians had a better understanding of the real physical status of the American people.

4. Some of our social questions can be unraveled only by those who possess a working knowledge of modern hygiene on the one hand and heredity on the other.

5. The racial composition of the American people has a vital relation to the practical solution of numerous pressing industrial problems.

6. Immigration is directly related to a host of the acute and chronic social situations and industrial difficulties of the present time.

7. As a people we stand in need of a great spiritual awakening—a national revival—based on the facts and truths of biologic science.

8. Moral reforms must be based on the facts of human heredity and must take due cognizance of human nature if they are to succeed.

9. There is immediate need of more fully recognizing the nation's health problems and better organizing its health agencies.

10. The crying need of the hour is a complete system of "vital statistics" covering the entire country.

11. Race hygiene is the study which should take precedence of all other subjects in the minds of the American people.

12. Race is the fundamental determiner of citizenship. There are some white races which are just about as unfitted for American citizenship (in the first generation) as are the Orientals.

13. The remedy for our national ills will not be found in the mirage of socialism, or the quack cure-alls of fake reformers. We need more education and less agitation.

14. Blind national optimism, ignorant patriotism, and the delusion of the melting-pot will not deliver us—we need the sound facts of biologic science to guide the nation in working out its social and political salvation.

CHAPTER II

OUR FIRST NATIONAL HEALTH INVENTORY

THE selective military draft gave us an opportunity, in a way, to make our first national health inventory. Heretofore, local health surveys have been made, school children have been examined, life insurance companies have conducted investigations and made a vast number of examinations, but these former researches have either been isolated; or, having been conducted for some special purpose, were more or less discredited by the general public; while there were always those who raised the hue and cry that many of these investigations were merely carried on for the purpose of "making more work for the doctors." At last, in the disclosures of the rejects of the selective draft, we have a comprehensive, representative, and authentic report that gives us something of an idea of the health status of the American people.

TWENTY-FIVE MILLION AMERICANS BELOW PAR

In carrying out the provisions of the selective draft, the medical examining boards of this country examined about 5,000,000 men between 21 and 31 years of age. (See Fig. 1.) Roughly speaking, they found about one-third of these men to be in such poor physical condition that even the superb physical training régime and medical aid of the army camps could not be expected to fit them for any form of active military duty. Of the total number of men examined, over 1,000,000 were rejected as unfit for service. The government had to say to these military rejects, in substance: "You are

physically inferior; although young, you are diseased, defective, or broken down. You are unfit to go out to defend your country in time of war."

Now, if this is the situation with the young men of the country, from 21 to 31, what must be the situation with men who are 35 and 40, or older. And of still more importance is the answer to the question: If the men of America make this poor showing, what would be disclosed if we examined 5,000,000 women from 21 to 31 years of age? The author is of the opinion that the women would not show up even as well as the men, and that somewhere from one-third to one-half would be rejected if equal standards were applied.

If this same ratio would hold out — taking the population of America to be in the neighborhood of 100,000,000 — eliminating some of the babies from the reckoning — it would leave us about 25,000,000 youths and adults in the United States who are below par physically, who are constitutionally inferior, and who are in need of immediate medical aid. The unfortunate part of this disclosure is the fact that much of this discovered defectiveness is of a hereditary nature — the result of defective germ-plasm.

And we are all interested, if we do not belong to this class, in knowing what we can do to keep out of this group of physical defectives and bodily cripples.

SIGNIFICANCE OF THE DRAFT-DISABILITY FINDINGS

Major Davenport and Lieutenant-Colonel Love have made a very painstaking study of the data secured by the medical examinations of the military draft, and while an enormous number of men were rejected — disqualified for military service — it is in some degree comforting to know that many of the causes for rejection were minor disabilities, while others were physical conditions that could be corrected by medical or surgical treatment. These medical officers report that only

about 468 men, per 1,000 examined, were more or less defective. This would indicate that a little more than half the candidates examined were organically sound and in every way fit for military duty.

About two-fifths of the defects found, it should be noted, were of a mechanical sort, such as those having to do with the feet, bones, joints, etc. The next group most numerous, were defects in the sense organs, followed by tuberculosis and venereal diseases.

It is probably true that fully 90 per cent of the people examined in the army draft would be fairly competent to accept and discharge their duties in some civilian capacity. About 10 per cent of the total number examined present defects that would disqualify them for efficient service even in civil life.

Of all the many lessons that should be learned from the draft data respecting physical examinations, one, at least, that we should recognize is that of extending the field of preventive medicine to cover the realm of personal hygiene. Concerning this phase of the subject a recent editorial in the *Journal of the American Medical Association*, very appropriately remarks:

The particular point of view that is emphasized by these results is the necessity for a much wider application of individual preventive medicine than has heretofore been deemed necessary. The day is past when preventive medicine consisted merely in attention to water supplies, sewerage, and general sanitation. The education of the public in the principles of correct living and the periodic examination of supposedly healthy individuals must become part of our creed as physicians if any great progress is to be made in the prevention of disease. While the necessity for community hygiene continues and still needs developing in many quarters, it has been clearly demonstrated that general sanitation will carry us only so far, and that the preventive medicine of the future must be concerned with the individual much more than has the preventive medicine of the past. The nineteenth century was the century of



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Fig. 1. Examining drafted men

communal hygiene; the twentieth century must be the century of individual hygiene.

CAUSES FOR REJECTION IN THE DRAFT EXAMINATIONS

According to an editorial in the *American Journal of Clinical Medicine* the causes of rejection at the draft examinations in 1917 and 1918 as reported by the Surgeon-General of the United States Army were as follows:

• Venereal diseases	938,232
Heart disease	564,768
Diseases of the ear including defects in hearing.....	525,600
Diseases of the eye including defects of vision.....	421,704
Flat-foot	346,392
Alcoholism	296,640
Diseases of organs of locomotion.....	277,128
Hernia	209,304
Diseases of the skin.....	174,672
Underweight	173,160
Diseases of the respiratory system.....	156,600
Defective teeth	146,088
Defects of development.....	132,552
Non-venereal disease of the genito-urinary system.....	124,992
Varicose veins	90,360
Disease of nervous system except as shown in detail.....	88,848
General disease except as shown in detail.....	82,800
Tuberculosis	76,824
Varicocele	48,168
Insufficient chest development.....	45,144
Disease of digestive system except as shown in detail....	43,704
Physical debility	38,880
Curvature of the spine.....	36,144
Overweight	31,608
Hemorrhoids	22,608
Underheight	21,096
Disease of circulatory system except as shown in detail....	7,560
Injuries	207,792
Rejected for causes not physical.....	1,721,304

MILITARY REJECTS BEFORE THE WORLD WAR

Between 1914 and 1917 the recruiting surgeons rejected 77 per cent of the 205,281 applicants for the army. That is,

during those years, just about 75 per cent of the applicants were found to be physically unfit for military service. After the declaration of war against Germany the standards of the war department were greatly lowered, but even with this lowering of standards the first examinations of the drafted men brought about a rejection of 29.11 per cent. After the accepted candidates were sent to the training camps and were re-examined 5.8 per cent of the accepted men were rejected, as the result of this second examination. There seemed to be little difference between the candidates from city and country. The rejects were about equally divided as regards living in rural or urban communities. So the matter stands thus: About 25 per cent of the candidates were rejected by the draft surgeons, and the re-examining military surgeons rejected an additional 6 per cent, thus bringing the total of rejects up to 31 per cent, or almost one-third of the total number of men called.

RECOMMENDATIONS OF THE PUBLIC HEALTH SERVICE RESPECT-
ING THE MILITARY REJECTS OF THE SELECTIVE DRAFT

Defective eyesight.—Be sure that your vision is corrected by properly fitted glasses. Have this done by an eye specialist, eye dispensary, or eye hospital. Do not try to fit cheap glasses to your own eyes. Eyestrain from badly fitted glasses may in time seriously affect your eyesight or health.

Teeth.—Decayed roots, infected gums, decayed teeth, irregular teeth which cannot grind may cause many forms of serious disease and should have immediate attention. Artificial teeth or bridges should be secured if the grinding teeth are missing, for if you do not properly chew your food your health may be affected. Brush the teeth thoroughly at least twice a day. If you have defective teeth, or much gold work, or many fillings in your mouth, X-ray to discover possible root infection is a wise precaution, especially if you have

rheumatism or any joint trouble, for which other causes cannot be found.

Feet.—Aside from paralysis, clubfoot, or deformities resulting from injuries, etc., most foot troubles are due to improperly fitting shoes, improper position in walking, lack of exercise, and weakness of the muscles in the fore part of the leg that support the arch of the foot. Properly fitting shoes of correct shape, with a straight inner edge (the Munson army last is a good style) will help to correct weak feet, bunions, corns, calluses and painful joints.

Exercise the toe muscles by working the toes up and down over the edge of a thick board, thirty times daily. Stand with feet parallel and somewhat apart, with great toes firmly gripping the ground. Without bending the knees or moving the feet rotate the thighs outward repeatedly. This is chiefly done by strong contraction of the great muscles of the back of the thigh and seat.

Improve your general health; take all-round exercise to strengthen your body. Bathe the feet daily. See a surgeon if these simple measures are not sufficient. The arches found in the shops will not correct flat-foot. They merely act as crutches. Hammertoe, bunion, and many other defects can be corrected by a surgeon. Painful feet may be due to infection in tooth sockets or tonsils — search for such conditions should be made. Mere flatness of the foot, without pain or other deformity may be of no importance.

Underweight.—Underweight is often due to irregular habits of eating and sleeping and lack of regular exercise. Have a thorough examination at intervals by a competent physician, or in dispensary or clinic, to determine whether or not any serious disease exists (especially hookworm or tuberculosis.) Eat freely of fat-forming foods.

Overweight.—Secure as much regular exercise as possible. Be thoroughly examined for evidence of disease. Extreme

overweight, especially at middle life, produces as high a death-rate as heart disease. Cut down the fat-forming foods, such as bread, butter, cereals, sugars, and fats; substitute more green vegetables and fruits.

Hernia, or Rupture.—Operation is often advisable. Consult a competent surgeon and confer with your local physician.

Piles, or Hemorrhoids.—These often are caused by constipation and lack of exercise. Do not use drugs or purgatives. Plenty of bulky food, bran bread or biscuits, fruits, lettuce, spinach, cabbage, Brussels sprouts, carrots, turnips, celery, tomatoes, salsify, onions, and parsnips will tend to correct constipation. If piles are severe operation will help, but the original cause should be removed by proper diet. Agar-agar, harmless and not a drug, can be had at any drug-store. Take a teaspoonful three times a day. Mineral oil is also helpful and harmless.

Varicocle and varicose veins.—If severe enough to cause rejection, operation may be performed. Upbuild general health by exercise and nourishing diet and fresh air. A suspensory bandage is often required. Support varicose veins by bandage or stockings. At times removal by operation may be necessary; but use great caution regarding this.

Bladder, kidney, and urinary troubles.—Go to your physician or to a clinic and place yourself under careful medical supervision. Regulation of your diet, work, and activities may be all that is necessary but your condition should be watched from time to time. Albumin in the urine may be temporary, but should always be followed up and examinations made at intervals. Give the benefit of the doubt to your kidneys and live a temperate and healthful life, avoiding stimulants, excess of meat, and overeating generally. Be examined periodically. Sugar in the urine calls for careful medical supervision and regulation of diet and periodic examination by a physician.

Ear trouble.—In case of discharge from the ear see a specialist or go to an ear clinic. Do not neglect such a condition, which may infect other parts of your body.

Heart affections.—A man with an imperfect heart may not be fit for military service, but with proper regulation of diet, exercise, work, and rest, his heart may carry him to old age. Avoid stimulants and tobacco; be temperate in the use of tea and coffee, avoid excesses of all kinds; eat moderately; avoid heavy meals at night; get plenty of fresh air; exercise daily in the open, but be careful not to overfatigue your heart or circulation—walking and gentle hill climbing are good, but never when they cause pain in the chest or shortness of breath. Avoid dissipation and undue excitement. If there is breathlessness, dropsy, or dizziness, careful medical supervision is necessary. All damaged hearts should be examined at least once a year by a physician and the condition noted. Irregular action of heart in some cases is of little importance; in others it is serious and medical observation is important to settle this.

High blood-pressure.—This may be temporary, but should be watched and the life regulated as above, especially avoiding physical and mental overstrain and dissipation. Eat little meat; avoid stimulants, tobacco, and overeating.

Lung trouble.—Where tuberculosis is suspected consult a competent physician and follow orders strictly. The basis of the treatment is abundant fresh air and nourishing diet, such as bread and butter, cereals and fats, but do not neglect green vegetables and fruits. Avoid alcohol and tobacco. Do not take patent medicines or advertised remedies, or patronize advertising quacks. Avoid fatigue, or physical or mental strain. Do not take any chances. Report to the health officer or health department of your district. They will be glad to counsel you.

Rheumatism.—This may be caused by infection in tonsils,

teeth, nasal cavities, or elsewhere. Liniment will not cure it. Be examined by a physician or dentist and have the infection removed.

Syphilis — Gonorrhea.— Thoroughgoing, persistent treatment is necessary for your protection and for the protection of the members of your family as well as that of your community. In large cities clinics for the treatment of these diseases are available for those without funds.

Alcohol.— Alcohol, as ordinarily taken, is not a stimulant but a depressing drug. Your brain and nervous system govern your body. Alcohol not only reduces the efficiency of a nation, but life insurance experience has shown that the death-rate among steady drinkers supposed to be temperate — even within the bounds of so-called moderation — is nearly double that among average people. Drink may lead you into trouble, possibly a miserable death. Why deliberately expose yourself to this sort of machine-gun fire?

Nervous and mental diseases.— Such conditions should be closely observed by your physician or at some clinic for nervous diseases. Some nervous diseases are due to bad mental habits, to fear, failure to take a courageous grip of life and forget one's troubles. Many nervous diseases may be caused by physical conditions which should be sought for and cured by a thorough medical examination and treatment.

Miscellaneous conditions.— Nose and throat troubles; gall-bladder trouble; chronic appendicitis; skin affections — all such conditions should have immediate medical investigation. If you have no family physician or if your means are limited, seek hospital or dispensary treatment.

HEALTH OF SEDENTARY PEOPLE

A few years ago the New York City Health Department started out, systematically to examine all its employees. One would naturally think these employees would be a trifle

healthier than the average of men and women who are engaged in sedentary occupations. They had no definite physical complaints and no aches and pains which led them to consult a physician. They simply took the annual examination which the department offers its employees.

The findings were somewhat disconcerting, inasmuch as they suggest that about 25 per cent of the men and women who work in offices have more or less kidney trouble — have albumin in the urine. They may even be said to have incipient Bright's disease.

We have no reason to believe but that any typical business organization or commercial establishment in this country would show approximately the same results if they were examined in this way. A summary of these results may be given as follows:

Of the 2,000 examined in this series, 2.5 per cent had albuminuria with high blood-pressure. Five of the 2,000 had diabetes; 8.8 per cent of the men and 6.7 per cent of the women had organic heart disease. In the vast majority of instances the patients were not aware of any existing abnormality in the heart; 8.7 per cent of the men and 5.5 per cent of the women had lung disease, mostly tuberculosis; 18.9 per cent of the men examined and 21.2 per cent of the women were much overweight; and pronounced overweight has a marked effect in decreasing the length of life. (See Fig. 2.)

Of the men 11.4 per cent exhibited high blood-pressure. Only 4 per cent of the women had high blood-pressure. On the other hand, a larger proportion — 17.7 per cent — of the women suffered from low blood-pressure. Of the women 7.5 per cent and of the men 4.1 per cent had complained of indigestion. More than 10 per cent were constipated. Thirty-three women had varicose veins. Fifty had weak, painful, or flattened arches. Two men had painful arches, four varicose veins. Twice as many women as men complained of headache.

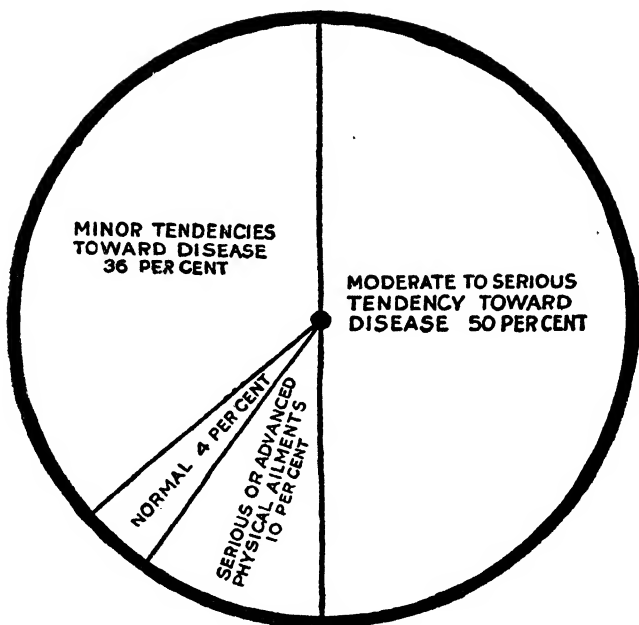


Fig. 2. Results of examining supposedly well people

Results obtained in the examination of several thousand supposedly healthy individuals (average age 30 years) employed in banks, insurance offices, factories, mercantile establishments, and other industrial concerns. Four per cent were found normal; 36 per cent exhibited minor tendencies toward disease; 50 per cent showed from moderate to severe symptoms of approaching disease; while 10 per cent were found to be already suffering from some serious or advanced physical ailment.

Thirty-five nurses, fifteen physicians, fifteen laboratory workers, and sixteen others had been vaccinated against typhoid; while 10 per cent of the employees were found in better condition at this examination than they were in the previous year.

ARE THE MODERN RACES DECLINING IN STATURE?

- It has been asserted that the French people are short of stature because the tall Frenchmen were all killed off in the Napoleonic wars, but careful investigation hardly warrants believing this statement. The author seriously doubts if there is occurring, or has occurred in recent times, much of a shortening of stature among the civilized races, though we must freely admit that, as compared with some ancient races, we must be growing shorter, or else these giant strains have, for some reason, largely disappeared from the face of the earth. (See Fig. 3.)

History tells us (1555) of three English brothers, Og, Gog, and Magog, who were London Tower guards, and all three were over 8 feet in height. The Duke of York is said to have had a yeoman 8 feet 6 inches tall. O'Brien, the Irish giant, was 8 feet 4 inches tall, and his skeleton is on exhibition today in the Royal Museum. Dr. Adam Clark tells of measuring a man 8 feet 6 inches high. There is a record of another Scotch giant 8 feet 3 inches tall, and Frederick the Great is reputed to have had a whole regiment of giants.

Even before the World War, England lowered her military stature standards and requirements three or four times in fifty years, and there are some anthropologists who claim that the stature of the civilized nations has really decreased. It is also a significant fact that in the Spanish-American War 25 per cent of all applicants for the United States Army were rejected on this one ground—they were not tall enough. And, in this connection, we must not overlook the fact that

stature is very definitely a matter of inheritance — it is regulated by precise and well-known laws.

LOOKING BACKWARD

When we stop to consider the large number of people who are constantly sick in this country every year, when we pause to consider that over 100,000 Americans annually die of pneumonia; that there are over 250,000 people sick in New York City all the time; that many diseases seem to be increasing instead of decreasing; that the health authorities of the country estimate that there are nearly 1,000,000 needless and premature deaths in America each year; when we pause to consider this situation in the presence of the fact that medical science has made great progress in recent years and that we have almost 200,000 doctors and health specialists at work constantly looking out for the welfare of the people; well, whatever our past gains we have much yet to gain, before we have cause for pride in our national health. In the United States today about 15 persons out of every 1,000 die annually. Even if we only estimate the value of a human life at \$5,000 our annual economic loss from premature deaths alone would be \$5,000,000,000.

The world's death-rate is considerably over 100,000 persons a day. The short-lived families seem to be increasing, while the long-lived families are decreasing, for it is a well-known biologic fact that longevity runs in families — as it also does in races.

There is no doubt but that some tribes of the human race used to live much longer than they do now. There are in history some remarkable accounts of longevity. We not only know they had giants in ancient times because of the records, but we find their skeletons and so we know the records are more or less accurate. Of an ancient king, about 1500 B.C. we read: "For only Og king of Bashan remained of the



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Fig. 3. Are the giants disappearing? Captain George Auger, 8 feet 4 inches tall, and Lady Little, but 30 inches high

remnant of giants; behold, his bedstead was a bedstead of iron; is it not in Rabbath of the children of Ammon? nine cubits was the length thereof, and four cubits the breadth of it, after the cubit of a man." (Deut. 3:11.) Now according to the reference tables a cubit of that time is eighteen inches. This would make King Og's bed about 13.5 feet in length. Another quotation from the Good Book sheds light on the physical condition of the Jewish people. About the middle of the fifteenth century B.C., the Psalmist says: "He brought them forth also with silver and gold; and there was not one feeble person among their tribes." (Ps. 105:37.)

Abraham, the father of the Jewish people, lived to be 175 years of age according to the records. Pliny tells of an Italian district which had 130 persons of 100 years of age, 57 were 110, 2 persons were 125 years old, 4 were 130, 4 were 135, and there were 3 people in the community who were 140 years of age. John Korin, a Hungarian, even in comparatively recent times, lived to the extraordinary age of 172 years, while a woman died in Moscow, in 1848 who was reputed to be 168 years old. In 1670 Henry Jenkin, an Englishman, died at 169. J. Neffingham, also an Englishman, died in 1757 at 144, while Lord Raleigh is authority for the statement that the Countess Desmond appeared in court in 1614, hale and hearty at the age of 140 years. Thomas Parr, familiarly known as "Old Parr," a native of Scotland, who lived a healthy and uneventful life up to the age of 152 years, was then discovered by an English count who, because of his great age, took him to London to exhibit him to his friends. Charles I heard of this remarkable subject, and brought him to the court, where, after a sumptuous feast, "Old Parr" promptly died of indigestion, but not from old age as the post-mortem examination showed no signs at all of physical degeneration. Many of these remarkable persons certainly must have belonged to long-lived families — even

though, in some instances, they may not have actually been as old as reputed.

It seems that Seneca was not far wrong when he said, "Man does not die, he kills himself." Many of the early Christian Fathers and ancients who limited themselves to a most frugal diet, consisting mainly of bread and water, attained to a remarkable age. St. Anthony lived 105 years; James the Hermit, 104 years; Arsenius, the tutor of the Emperor Arcadius, 95 years, and St. Epiphanius, 92 years. Cornaro, the famous Italian writer on dietetics, was given up to die at 40, but adopted an abstemious diet, and lived to be 102 years old.

The British statesman, Gladstone, enjoyed vigorous health and did his usual work at 83. The poet, Bryant, did excellent work at 80. Galileo, at 70 years, was an excellent student, and a hard worker. Michelangelo designed the rebuilding of St. Peter's and was on the job in charge of the work at the age of 89. He painted his masterpiece, "The Conversion of St. Paul" at 75, and worked on until his death at 90. Titian lived to be 100 years of age, and at 87 produced his masterpiece, "The Last Supper." Stradivarius made his most famous violin at 90. Hippocrates lived to be 99 years of age. Sir Isaac Newton worked up to 85. Socrates was 70 at the time he was murdered.

LOOKING FORWARD

While a study of the causes for military rejection supplies us with food for serious thought, at the same time they suggest to us that we are, after all, far from being a physically decadent nation. Many of these causes for military rejection were minor, trivial — that is, from the standpoint of civilian activity and efficiency. On the other hand many of them were removable or curable, by proper medical attention or surgical procedure. While the results, on the whole, are not

alarming, they challenge us to arise and take proper steps to set our physical house in better order. The most serious aspect of this whole question is the fact that such a large part of our defectiveness is to a certain degree hereditary, and that it is destined to be passed on to succeeding generations.

The major disabilities disclosed by the medical examinations of the selective draft—the more grave disorders and alarming conditions found—will be studied in subsequent chapters, in which some of these more serious maladies are considered as a part of the discussions of this work: such diseases as tuberculosis, cancer, venereal diseases, Bright's disease, cardio-vascular disorders, etc.

SUNDRY EVIDENCE OF RACE DECADENCE

It is not only in the realm of degenerative and old-age diseases that we see evidences of race deterioration. We find it in connection with many other grave diseases and minor disorders. In many different ways we observe a lowering of the vital resistance of the human species.

For instance, take the matter of teeth. There is no denying the fact that the white races in particular are, from generation to generation, exhibiting a tendency to tooth decay that is alarming. While it may be entirely true that much of this trouble is due to the eating of too much soft foods, thus failing to give the gums proper massage and friction, all of which results in bringing about a more or less diseased condition of the gums, which sometimes goes so far as to develop into pyorrhea; nevertheless, notwithstanding our failure to take proper care of the gums, the author is of the opinion that there is an inherited tendency toward inferior teeth in many strains of American stock. In other words, we believe that soundness of teeth is not merely a matter of hygienic care, it is also a matter of inheritance. Take, for instance, the teeth of the Negro race, as we see it in America.

Sometimes, with little or no care, we see magnificent sets of teeth among Negroes. So that we cannot but conclude that heredity is directly concerned in the quality of the individual's teeth.

Another matter that is interesting in this connection is the question of baldness. How many men we see now, bald at middle life. And even the women are more and more having to resort to artificial hair to piece out their head adornment. While the subject of bald heads is one that has received much attention at the hands of the medical profession, it is a question by no means satisfactorily solved at the present time, and while it is not a serious symptom as regards race decadence, it is one of those little straws that show which way the racial winds are blowing. At least it is somewhat disconcerting to contemplate, sometime in the not distant future, when we will be what one alarmist has denominated "a toothless, hairless race."

SUMMARY OF THE CHAPTER

1. In the selective military draft the nation took its first health inventory. This was our first comprehensive and authentic efficiency audit.

2. Practically one-third of the drafted men from 21 to 31 years of age were rejected for military duty.

3. This same ratio applied to the nation (excepting the very young and the very old) means that we have 25,000,000 citizens below par.

4. About one-half of the men examined were seriously defective. The balance had only minor or curable medical and surgical ailments.

5. About 10 per cent of the men examined had defects which would disqualify them for any service even in civil life.

6. The one great lesson to be learned from the draft data is that of the value of the annual medical examination. Everybody should be examined once a year.

7. Sanitary science alone will not keep the nation well and fit; personal hygiene is equally important.

8. Venereal disease constituted the leading cause for rejection; with heart disorders next. Almost a million with the former and over half a million with the latter.

9. Almost 2,000,000 men were rejected for causes not physical. This group includes those found insane, feeble-minded, etc.

10. For a number of years before the World War 77 per cent of applicants for the army were rejected.

11. As regards the comparison between city and country there appears to be little difference in the per cent of military rejects.

12. It appears that many of the causes for rejection are curable, such as defects of the teeth, feet, eyes, ears, and certain common disorders of nutrition, together with hernia, venereal diseases, and nervous disorders.

13. The New York City Health Department examined its force with the following results: Twenty-five per cent of these sedentary workers have more or less kidney trouble; 2.5 per cent showing albumin in the urine with high blood-pressure.

14. An ancient strain of giantism seems to be dying out of the modern races; though it is probable that stature is not markedly decreasing at present.

15. England has lowered her military standards for height three to four times in fifty years; and in the Spanish-American War 25 per cent of applicants were rejected because they were not tall enough.

16. Over 100,000 Americans die each year of pneumonia; 250,000 people are sick in New York City all the time; and there are 1,000,000 premature deaths in this country annually.

17. In the United States 15 people out of every 1,000 die each year. Estimating a life at only \$5,000, this means an annual economic loss of \$5,000,000,000.

18. The world's death-rate is over 100,000 persons a day.

19. There can be little doubt that people used to live longer than they do now. Modern "man does not die, he kills himself."

20. Many of the ancients did good work until they were 75 or 100 years old.

21. The military draft data, while supplying food for serious thought, shows that we are far from being a decadent nation.

22. Bad teeth and bald heads are on the increase among the American people. Heredity is a factor in the causation of these and many other physical defects.

CHAPTER III

POSTPONING YOUR FUNERAL

THE time has come when the American citizen should begin to pay some attention to the vital statistics of the nation; when he should wake up and begin to take a real interest in postponing his own funeral. Somewhere in the future there will come a time when the government will not allow people to die promiscuously and prematurely without inquiry — when the citizen will not be allowed to commit suicide on the instalment plan. The time is certainly coming when, every time an American citizen dies under 50 years of age, a coroner's inquiry will be held to ascertain the cause of death and place the responsibility.

VITAL STATISTICS

Someone has called vital statistics "humanity's bookkeeping." Such figures have to do with the life history of national populations. They point out the causes of death, the increases and decreases in mortality; and, of course, indirectly these statistics of health and disease suggest the organization of such sanitary and hygienic corrective measures as would more or less successfully counteract those causes of disease and degeneracy which are contributory to any given mortality rate.

Vital statistics must be interpreted by experts. A great many factors enter into their correct understanding, and it is sometimes possible, apparently, to prove two contradictory propositions by the same statistical data. The questions of race, nationality, season, sex, and occupation, not to mention

locality, all enter into the interpretation of these figures regarding health and disease. For instance, women are, in general, longer lived than men; while recently settled communities contain more young people in the prime of life, and therefore would, necessarily, show a lower death-rate. The large cities present their own peculiar problems which must be taken into consideration in the study of vital statistics.

Owing to the fact that vital statistics are a function of the state, and are not kept or collected by the federal government, we have no complete body of figures covering the whole of the United States. From time to time new cities are added to the registration area of the country, so that up to the present time we have twenty-seven states, the District of Columbia, and forty-three cities in non-registration states, embraced in the vital statistics registration area of the country. This comprises about 75 per cent of the population, so that by estimating the 25 per cent in the non-registration area, we are able to arrive at something approximating correctness, in the mortality estimates for the nation as a whole.

BIRTH-RATES AND DEATH-RATES

The birth-rates of most civilized countries, like the marriage-rates, have been on a steady decline for a number of years. It seems that the civilized peoples are getting married at a later age, as the years go by, thus reducing the length of the period of reproduction; but we think the birth-rate is more directly influenced by other causes, such as the more widespread practice of various methods of "birth control" and by the economic situation—the High Cost of Living. The rapidly declining birth-rate among the French people is a cause for alarm, not only to that nation, but to other civilized peoples. A hundred years ago France represented 25 per cent of the population of the so-called Great Powers of the world. Today it represents 12 per cent, and this great decline

is almost entirely due to the falling off of the birth-rate. The same thing is happening in England, and in the United States, the increasing decline of the birth-rate is found among the descendants of the original colonists and the earlier immigrants.

A hundred years ago our forefathers frequently had families numbering a dozen or more children. Nowadays a family of six or eight is sufficiently large to attract general attention.¹ The large families, today, in the United States, are to be found, most frequently, among the more recent immigrants. Now, if the death-rate increases, or is not decreased, in the presence of this declining birth-rate, we have a serious problem confronting us, from the standpoint of normal growth and the future of the race.

THE DEATH-RATE

The mortality rate for the last year for which we have complete reports was 14.2 per 1,000 of population. This is a trifle higher than in the past five years; in fact the highest since 1911, when it was the same rate. This means that every American born has an average chance of living to be 70 years old. That is, that would be the apparent or statistical length of life; but, as we shall see presently, it is not in reality the true average length of life. If the death-rate should ever fall as low as 10 per 1,000 — as it might conceivably in some communities — and should continue at that point for a long period, it would mean that the inhabitants would average 100 years of age at death. A stationary mortality rate of 12 would mean an average age of 83, while one at 15 would mean an average of nearly 67 years.

The influence of age on the mortality statistics is the most disturbing factor. For example, the mortality rate per 1,000

¹ The last census report states that the average family in the United States consists of 4.3 persons.

children under 5 years of age is about ten times that of persons between 5 and 25, and more than six times that of adults between 25 and 45. It is, therefore, apparent that the greater proportion of very young and very old to be found in any population materially increases the death-rate. It should also be remembered that we have about 10,000 suicides a year.

In Appendix A, Table No. 1, will be found a table showing the death-rates in this country from 1907 to 1917.

RACE AND MORTALITY

Racial peculiarities and national tendencies have a direct influence, not only on health and vitality, but upon the death-rate. For instance, the Negro race is much more subject to certain diseases than are the white peoples; and, due to lower standards of hygienic living, wherever the Negro population predominates in the United States, there invariably appears a higher death-rate, all things being equal. In fact, it really becomes necessary completely to separate mortality tables for the white and black races, in order to arrive at a true understanding of the situation.

In some cities the death-rate of Negro babies and young children of certain ages is just double that of the white children in the same localities. Of course some of this infant mortality, in both whites and blacks, is due to the overcrowded condition of the slums of our large cities, where poverty, immorality, ignorance, and insanitary habitations, together with a high birth-rate, carelessness and filth, contribute enormously to increase the death-rate.

CITY AND RURAL DEATH-RATE

Some interesting information can be gleaned from studying and comparing the city and rural death-rates of the original registration states.

Annual death-rate per 1,000 living white males:

Age	Rural	Cities	Excess Per Cent, City
20-24	4.83	4.93	2
25-29	5.13	5.73	11
30-34	5.39	7.32	34
35-39	6.30	9.73	54
40-44	7.06	12.10	71
45-49	8.67	15.18	75
50-55	10.65	19.17	80

We learn by these tables that the mortality in the cities, especially at the middle ages of life, greatly exceeds that in the rural districts. There is a warning in these figures which we should heed. It is not alone that we need to cultivate more land and raise more food, but we need to place more people on the land and so to govern and guard the health of our industrial classes in the cities that its limited call on muscular activities and greater strain on vital organs may be, to some extent, neutralized.

The population, taken as a whole, might not show such a balance in favor of the country. In some respects the city is a more healthy place than the country. Modern sanitation, and other measures which safeguard the health of the children in the larger cities, are, year by year, contributing to make the children of the cities more healthy and vigorous than the famed "healthy country boy."

PRINCIPAL CAUSES OF DEATH IN THE UNITED STATES

The last report of the Census Bureau on the principal causes of death in the United States, is highly instructive, and it represents our national system of bookkeeping as regards disease and mortality. The latest report we have at hand represents a general death-rate of 14.2 per 1,000 of population. (See Fig. 4.)

Of the total number of deaths occurring in the United States, almost one-third are due to three disorders — heart

disease, pneumonia, and tuberculosis; while the next one-third of deaths are due to the following nine causes: Bright's disease, or nephritis, apoplexy, cancer, diarrhea, or enteritis, arterial diseases, influenza, diabetes, diphtheria, and bronchitis. And it may be of interest, in this connection, to repeat that only twenty-eight states (including the District of Columbia) keep vital statistics—only twenty-eight states keep books respecting health, disease, and death.

Heart disorders.—During this one year there were 115,337 deaths (153.2 per 100,000) from organic diseases of the heart, including endocarditis, and this is a little better showing than was made in some years previous. While statistics on heart disease fluctuate from year to year, there has been a general and steady increase, even a marked increase since 1900, the first year in which these annual mortality statistics were published, and which showed a rate of only 123.1 per 100,000 as the mortality rate for heart disorders.

Pneumonia—including bronchial pneumonia, was responsible for 112,821 deaths (149.8 per 100,000 of population), and represents one of the highest rates noted for several years. The pneumonia death-rate has been coming up steadily for several years.

Tuberculosis—in its various forms, was responsible for 110,285 deaths, of which 97,047 were due to tuberculosis of the lungs. The death-rate from all forms is 146.4 per 100,000 of population. The death-rate from tuberculosis has been declining gradually ever since 1904, having decreased nearly 30 per cent. Until 1912 more deaths were due to tuberculosis than to any other single cause, in America, but during that year it gave way, allowing heart disease to occupy first place.

Bright's disease.—Diseases of the kidneys caused 80,912 deaths (107.4 per 100,000 of population). Kidney disorders have increased almost continually for twenty years, the death-rate being only 89 per 100,000 in 1900.

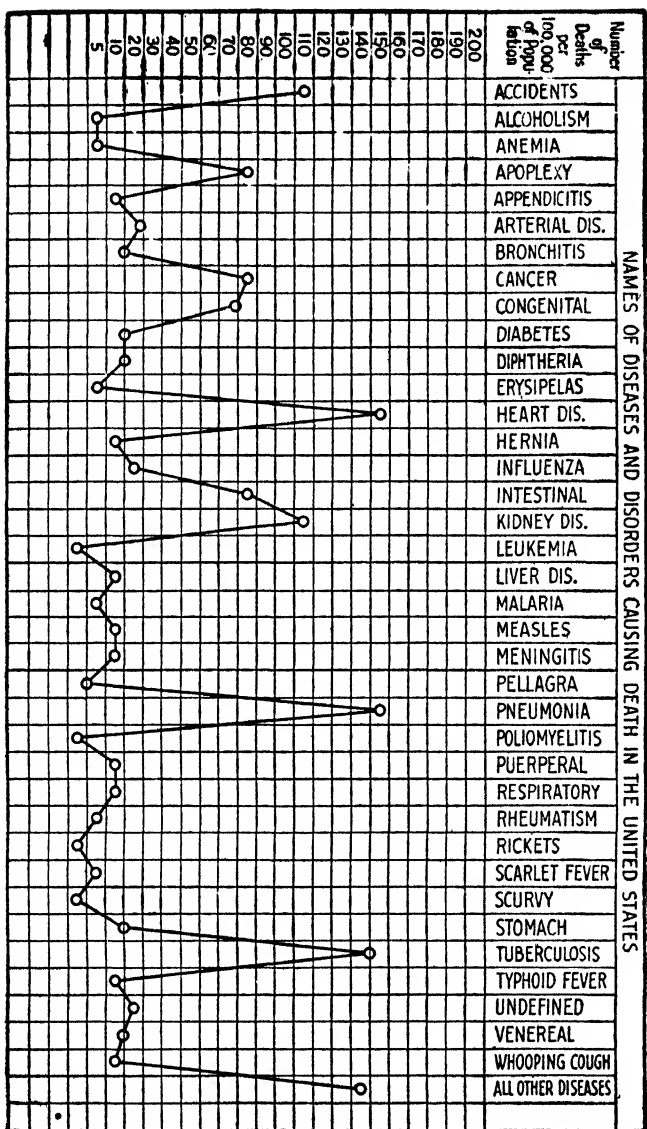


Fig. 4. Graphic showing principal causes of death in the United States

Apoplexy and paralysis — were the cause of 62,431 deaths (82.9 per 100,000), and this rate has increased almost continually for twenty years.

Cancer — and other malignant tumors caused 61,452 deaths. The rate for cancer death has risen from 63 per 100,000 in 1900 to 81.6 in 1917. Of these cancer deaths, 38 per cent were due to cancer of the stomach and liver, and of course, some at least of this increased death-rate for cancer must be attributed to more care and efficiency, in making the diagnosis, on the part of the medical profession.

Diarrhea — and enteritis caused 59,504 deaths (79 per 100,000). This group of diseases represents a falling death-rate in recent years, and it should be borne in mind that more than four-fifths of the total deaths charged to this cause occurred in infants under 2 years of age.

Arterial disorders — of various sorts, aneurism, hardening of the arteries, etc., resulted directly in 19,055 deaths (25.3 per 100,000). The increase in these disorders has been continual from 1900, when it was only 6.1 per 100,000.

Influenza — was responsible for 12,974 (17.2 per 100,000), and represents a death-rate lower than the preceding year and of course much lower than some of the years that have succeeded.

Diabetes. — Deaths due to this disease numbered 12,750 (16.9 per 100,000). The death-rate from this disease has risen almost continually from 1900, when it was 9.7.

Other causes of death. — During the year there were 6,724 (8.9 per 100,000) deaths from automobile accidents alone. Accidental drowning caused 5,550 deaths (7.4 per 100,000). From asphyxiation we had 3,375 deaths (4.5 per 100,000). Mine accidents caused 2,623 deaths (3.5 per 100,000). Deaths from vehicles other than railroad cars and automobiles numbered 2,326; street-car accidents, 2,227; machinery accidents, 2,212; hot weather, 1,964; while

the number of suicides reported for 1917 was 10,056 or 13.4 per 100,000.

Other deaths due to external causes, including homicides, total 18,353 or 24.4 per 100,000.

The complete table showing the death-rate from various diseases, the rate per 100,000 of population, etc., may be found in Appendix A, Table No. 2.

AVERAGE LENGTH OF LIFE

It is true that, during the last hundred years, the average length of life has apparently increased from thirty-three years up to about forty, and can be variously figured out, by different methods and in different countries, as extending up to forty-five or even fifty years and more, at the present time. Now, some of our enthusiastic sanitarians point with pride to this achievement, and attribute it to the improved sanitation in our great cities. They claim that our sewerage systems, pure water supply, better milk, etc., have all contributed to this decrease in mortality.

On the surface, it does seem that the increase of the length of life has just about kept pace with improvement in sanitation and public health measures, but when we begin to analyze the statistics we discover that this apparent increase in the average length of life is almost wholly the result of lessening the death-rate, on the one hand, from such contagious diseases as typhoid, smallpox, cholera, plague, etc.; while, on the other, it results from increasing the number of years which are lived by the population on the two extremes of life—that is increasing the length of life of infants and of the very aged, and other weak and enfeebled members of society. We do not allow the children of the poor, or the insane and feeble-minded, to die as early as we used to. Science has intervened and reversed the law of the jungle. Nature has decreed the survival of the fittest.

but civilization has, these last few years, ordained also the survival of the unfit, both among the very young and the very old.

The true standard of vital endurance is not this apparent statistical average length of life, but rather the number of persons per thousand in the population who attain great age. As years go by, in any community, in any city, or in any state, there will be found a lessened number of centenarians, and so, while it is true that the average length of life has been increased, it is also equally true that the chance of any one individual living to a good old age has been markedly decreased. In other words, we have increased the average length of life by adding to the longevity of the infant, the weak and feeble, and certain groups of aged persons, rather than by adding to the length of life of the strong and robust—in fact, as will be subsequently shown, in some respects this desirable group in our population is not living quite as long as it used to.

What is the average length of life today? That is a difficult question to answer. There are several methods of figuring out an answer to this question such as the average age at death, found by dividing the combined ages of all those dying in the registration area in a given year, by the number dying, say 39.8. These figures are, however, of little value because they do not relate to a stationary population. Moreover, you cannot determine the average length of life by dividing 1,000 by the death-rate, because the death-rate refers to a constantly changing population, due both to the excess of births over deaths and also to immigration.

The expectancy of life given in the Life Tables is probably the most reliable figure, because it is based on a stationary population and on mortality data of several years. These tables, however, do not relate to the entire United States. As you will see in these tables, the expectancy of

life for both sexes taken together is 51.49 in the original registration states, while many other figures are given — for males alone, females alone, white males, white females, etc

By referring to the Life Expectancy Tables, Appendix A, Table No. 3, you will be able to ascertain the number of years an individual of any given age may (on the average) expect to live.

WHEN WILL YOU DIE?

The life insurance companies employ men to figure out when you will die — when the average American citizen is due to pass on. They do this in order to find out what they must charge for life insurance. The actuary of the Equitable Life Assurance Society of the United States recently discussed this subject before a meeting of life insurance presidents, and someone made the following digest of his remarks:

It is the business of a life insurance actuary to figure when you will die. He keeps an eye on you all the time. Not you, personally, but you as an average American. You look smooth, pink, and healthy. You are a good liver. (He said *are* not *have*.)

The medium age at death of the American people is about 43 years. Your eyes have been strained by inside work — hence the glasses. Your teeth look good, but they need attention.

You are seriously overstraining heart, arteries, kidneys, nerves, and digestion — as the rapidly increasing death-rate shows. You are always in a hurry. You could detect and head off these troubles if you would go to a doctor for an occasional examination.

Under exertion you are short-winded, due to lack of exercise or a bad heart. Your four hundred muscles are virtually all soft and weak from lack of use. You are

designed as an erect, outdoor animal, with feet and legs for service; but you lie down all night and sit down all day. You never walk when you can ride. The arches of your feet are gradually falling, because the muscles provided to hold them up have weakened from long disuse.

Your ancestors lived on a farm; the proportion of people living in cities has increased 131 per cent in fifty years.

You feed your stomach with all sorts of tasty junk, much of which cannot be fully digested; so you develop auto-intoxication.

With every pound of fat you gain, your chances of a shortened life increase. You eat 30 per cent more food than your grandfather did; and 374 per cent more sugar.

You have been drinking 19.8 gallons of liquor: he drank 6.4. You do this in spite of the repeated warning of insurance companies that moderate drinkers die 18 per cent faster than total abstainers; and steady drinkers 86 per cent faster.

You spend 367 per cent more for patent medicines and drugs than your father did; and you drink 54 per cent more coffee.

In your easy-going, optimistic way, you are cheered by the fact that the general death-rate seems to be declining. You fool yourself with the notion that this means a good old age for you. As a matter of fact, the decrease in the death-rate is due to the better care of infants and certain classes of old folks. Not only is the adult death-rate not decreasing; it is alarmingly increasing.

Since 1900 the death-rate from Bright's disease has increased 15 per cent; from diseases of the heart 27 per cent. These are the diseases of adult life, the diseases of hurry and worry and overeating and nervous wear and tear.

Remember, this is the picture of a life insurance official, whose business it is to figure how much you ought to pay

for life insurance, in view of the fact that you will probably die before you are 50 years old.

But there is hope for you. An annual medical examination, more exercise outdoors, less food, more dentistry, no booze, more walking, and less taxicabs. Most of all — no hurry and no worry.

WHY PERIODICALLY INSPECT YOUR CAR AND
NEGLECT YOURSELF?

• The one prominent characteristic of our present-day social and commercial life is its high tension. People are living at a fierce pace, and the pressure gauge of life registers all the while dangerously near the bursting-point. Just as the smoke of the hot box warns the trainmen of approaching danger, so high blood-pressure sounds its warning note of impending disaster. No automobilist would dare heedlessly to drive his machine with a shrieking axle or a rattling wheel unless his journey were actually one of life and death; and yet how often we observe men and women forcing their body machines forward under the lash of ambition — utterly heedless of the disease danger signals which loom up in the pathway of life — just ahead.

The higher the speed — the more intensely you drive the human machine — the more the necessity that the bodily mechanism be regularly inspected. You think nothing of spending from twenty-five to one hundred dollars, periodically, for having your automobile overhauled and kept in first-class running order; why not be willing to invest a reasonable amount of money and devote a little of your time to the all-important work of the periodical inspection and the annual overhauling of your physical body — your nervous, digestive, circulatory, and eliminative mechanisms?

An alert, active brain, readily grasping the intricate problems of twentieth-century business, isn't found in a run-

down body. Prevent physical ailments and you can the better maintain the mental and bodily mechanisms at top-notch efficiency.

THE MODERN HEALTH AUDIT

After one reaches the age of twenty-five he should submit himself to a searching "health audit" every five years. This investigation should be repeated, with a less complete annual research during the intervening years — a check-up of urine, blood-pressure, teeth, etc.

Bright's disease, apoplexy, heart failure, nervous prostration, diabetes, and many other physical and nervous disorders, which contribute so largely to the death-rate and the crippled efficiency of the civilized races, usually cast their warning shadows a long way ahead of the actual cataclysm. They hang out red lanterns of forewarning which could not be overlooked by these systematic and periodic physical audits and medical examinations.

There are two reasons why every successful business and professional man has not been "audited:" first, he has not appreciated its importance; second, there has been no adequate provision made for this service.

But times are changing. Today intelligent men of affairs are coming to appreciate the vital importance of knowing just where they stand in physical efficiency — just what is their balance in the ledger of life. And this is being driven home by the attitude of some of our bankers and insurance companies, who are beginning to demand physical audits, showing a clean bill of health from men to whom they make commercial loans. The time is not far distant when any man who secures a loan in which the personal equation figures at all, will be compelled to submit to his banker a "physical auditor's report" as a part of his assets.

Why are hundreds of thousands of dollars spent every

year to determine how the bookkeepers, cashiers, and accountants of this country are doing their work and next to nothing to find out how the vital organs — the lungs, liver, kidneys, heart, and blood vessels — of the men who employ these same bookkeepers are doing theirs?

You can fire an incompetent accountant and hire a good one, but not so with your vital organs; when they go "stale" it's too late to "lock the barn;" better to have watched the door and caught the thief.

What would you think of an engineer who never inspected his machinery until notified of a breakdown? What would you think of a business man who never audited his books until informed that his cashier had absconded? What do you think of the nation that fails to prepare against war until hostilities break out? And last, but by no means least, what do you think of men and women who never have their bodily machines inspected until a physical breakdown or nervous "blow-up" makes action imperative?

Of course, we must all pass on some time, but why, by neglecting reasonable means of prevention, should we hasten that event? Every thinking man should be interested in the possibility of postponing his own funeral.

A table showing death-rates at different ages will be found in Appendix A, Table No. 4.

LONGEVITY IN THE UNITED STATES

The expectation of life or, better, the average duration of life at various ages and in different racial groups, has been a common theme of statistical inquiry. Improved and more exact methods of calculation, together with the accumulation of additional data, are, however, continually stimulating fresh studies in this field. A recent article by Forsyth on the trend of longevity in the United States, although it deals only with the census records from 1890 to 1910, contains

some important figures. In 1890 the expectation of life for a male native white of native parentage at 10 years of age was 56.1; by 1910 this had fallen to 54.1. At the age of 40 the expectation in 1890 was 32.8; in 1910, only 29.9. In fact, in each age group and in both sexes the average expectation showed a notable loss for the two decades from 1890 to 1910. A large loss in expectation was also shown by the native whites of foreign and mixed parentage. On the other hand, the foreign-born whites, especially the males, gained materially in the average duration of life during the same period. Forsyth emphasizes especially two points: first, the remarkable longevity enjoyed by native Americans of native parentage, which he considers probably unequaled anywhere else on earth; and second, the gradual loss of this superiority at a rate of about one year each decade. He seems inclined to attribute this "momentous retrogression" to certain unspecified "factors in the American mode of living;" but it seems evident that the conditions are very complex. He observes:

The native whites of native parentage are being added to all the time from various racial stocks not perhaps as resistant as the original native stocks. From decade to decade therefore, the native whites of native parentage represent an ethnically different group. Whether the loss in expectation is due to some mingling of less resistant strains or whether the shortening in average duration of life is due to purely environmental factors, can perhaps hardly be determined. The question is one that must be considered in connection with the fact that in recent years, in this country, the general mortality has increased disproportionately in the ages above 40. At all events, the bearing of the census of 1920 on the trend of longevity will be awaited with interest.

SUMMARY OF THE CHAPTER

1. The time has come when the American citizen should wake up and take a real interest in postponing his own funeral.

2. Vital statistics are "humanity's bookkeeping." They form the basis of all health movements, and should be interpreted by experts.

3. In the United States the registration area for the collection of vital statistics represents only about 75 per cent of the population.

4. Both the birth-rates and marriage-rates of the civilized nations have been on a steady decline for many years.

5. In this country there is an increasing decline in the birth-rate among the descendants of the original colonists.

6. In America, today, the largest families are to be found among the most recent immigrants.

7. Since our death-rate is about 15 per 1,000 it gives us a "statistical" length of life of 70 years. But we do not actually average that.

8. The deaths among the very young and the very old greatly disturb the mortality statistics, and we have 10,000 suicides annually.

9. Race directly affects the death-rate. The Negro is more subject to numerous diseases. In some cities twice as many Negro children die as white children.

10. As between city and country the death-rate for those under 20 years is about the same; above that age it becomes increasingly higher in the cities.

11. In some respects the city is a healthier place for children than the country.

12. Almost one-third of the total deaths in the United States are due to three disorders—heart disease, pneumonia, and tuberculosis.

13. The next one-third of deaths are due to nine causes—kidney troubles, apoplexy, cancer, intestinal disorders, arterial diseases, influenza, diabetes, diphtheria, and bronchitis.

14. One hundred and fifty-three persons out of every 1,000 die of heart diseases each year in this country.

15. One hundred and fifty persons out of every 1,000 die of pneumonia annually; and 107 out of every 1,000 perish of Bright's disease.

16. Apoplexy, paralysis, and hard arteries claim 108 out of every 1,000 each year; cancer claims 81 per 100,000.

17. The apparent increase in the average length of life is deceptive, and is due to decreasing the plagues and lessening the death-rate of the very young and very old.

18. The increase in life is due to a reversal of the law of natural selection. We are increasingly prolonging the lives of the unfit.

19. The truer standard of vital resistance is the number of persons per 1,000 who attain great age.

20. There are many ways of figuring the average length of life; the most reliable probably being that of the Life Expectancy Tables—which gives 51.49 as the American average for both men and women.

21. The life insurance companies figure the medium age at death as about 43 years, and they estimate that this can be greatly lengthened by proper habits of living.

22. They say we eat 30 per cent more than our grandparents, consume 374 per cent more sugar, and drink 54 per cent more coffee.

23. In twenty years the death-rate for kidney disorders has increased 15 per cent; for heart diseases 27 per cent.

24. Why should you periodically inspect your machinery and motors, and wholly neglect to have your own body overhauled?

25. Most all serious physical disorders cast their warning shadows beforehand, and would be detected by the annual health audit.

26. A study of the expectation of life at various ages shows a distinct decline every ten years in the census returns for recent periods, that is, among the native white population of the United States.

CHAPTER IV

SICKNESS IN THE UNITED STATES

IT IS not generally appreciated that a great deal of our minor and commonplace sickness is largely preventable; while other varieties of affliction are due to inherent weaknesses in the stock. We experience a tremendous economic loss every year in the United States as a result of this vast toll of sickness disability. A study of this question as it affects the American people discloses at once that we are subject to attack on the part of numerous acute and chronic diseases, against which we possess but partial means of defense, either natural or as regards approved scientific methods of disease prevention.

NEED OF A HEALTH REVIVAL

Health is our greatest national resource. It is the basis, not only of all efficiency, but also of human happiness.

The American people are only half-hearted in their health wooing. They do not enter into the conservation of health and prevention of disease with the same enthusiasm and whole-heartedness that characterizes our individual business and commercial life.

We are engaged largely in treating symptoms rather than fighting disease—in dealing with the results of ill health, rather than the prevention of physical disorders. We are undertaking to dam the stream at the mouth rather than to control the flow of disease at its source.

Health is worth the cultivation from the standpoint of

efficiency alone. It constitutes the foundation of intellectual advancement, while it is also the veritable background for artistic attainment and spiritual enjoyment.

Ill health with its resultant incapacity and maladjustment of home life is, except in the case of disturbed sex relations, in my opinion, just about equal to all other causes of domestic unhappiness and subsequent divorce.

Sometimes the home is destroyed by that type of ill health which manifests itself as nervous nagging, carping criticism, habitual haranguing, and constant complaining.

Many a home that has proved invulnerable to drink has been wiped out by drudgery—that slavery which is half poverty and half disease, and which never fails effectually to destroy human happiness and the joy of living.

What an interesting statistical study it would be to know how many bankruptcies and other practical business failures each year are due to failing health, insidious disease, and other physical and mental and nervous conditions which could have been easily detected and largely prevented by regular, periodic “health audits”—thoroughgoing medical examination before the individual got sick or either broke down or “blew up.”

Heredity is to blame for a lot of inefficiency, nervous wrecks, and failures, just as much as it is for insanity, epilepsy, and feeble-mindedness; but lack of training and discipline in the nursery, together with subsequent loss of health are also to blame for many criminals, hysterics, and other erratic and unsocial human beings.

Think of the inefficiency of a modern government when the American people lose almost 1,000,000 citizens each year from premature deaths and preventable diseases.

In trying to bring about a hygienic revival let us beware of “health fads.” Do not make a religion out of hygiene. Avoid fanatical extremes in health teaching. Look out for

both health puritans and hygienic nihilists — look for the “golden mean” in health practices and thus avoid injurious extremes.

THE SICKNESS PROBLEM

Is there a real sickness problem in this country today which requires a solution and which, if it remains unsolved, is, and will be, of serious detriment to the health of the nation?

There have been a number of sickness surveys made by the Metropolitan Life Insurance Company in various states of the Union, covering a total of 637,000 persons. These surveys cover 13,321 cases of illness. Of these, 12,114 persons were so disabled as to prevent them from following their occupations. Among the women of all ages, 2.13 per cent were sick and 1.93 per cent disabled. Of the men, 2.05 per cent were sick and 1.87 disabled.

Of the 376,573 people over 15 years of age, 8,636 were disabled, that is, 2.3 per cent. The average loss of time through sickness for each person of working age was therefore, 8.4 days, or 6.9 working days per year.

Separating these data for men and women over 15 years, we see that men have a morbidity rate of 2.28 per cent and women of 2.3 per cent; an average total loss by days of 8.3 for men and 8.4 for women. These are for the white race.

The California commission found that the working days lost each year for wage-earners were 6 per worker in that state. The Pennsylvania Health Insurance Commission has found that in their surveys 4.28 per cent of the population are seriously sick at all times, and that 1.5 per cent of the population are disabled from this sickness at all times. The average days of disability per year for all persons is 5.7, and for men during the working days of life at 15 years and over is 8; for women 15 years and over it is 6.3,

making the average working days lost per year 6.6 for men and 6.2 for women.

In Ohio the Health and Old Age Insurance Commission estimates that nearly 3 per cent of the people were sick at all times, and that 20 per cent of the workers have a disabling sickness lasting over 7 days each year. Each worker loses on the average 9 days per year because of sickness.

In Connecticut, in the case of certain insurance funds, it was found that each worker averaged a loss of 6 working days a year.

The Illinois commission, in studying forty-one blocks in Chicago, found that in the 3,048 families, containing 12,950 persons, 65.8 per cent of these families had serious illness in them during the year. These forty-one blocks were taken in that part of the city which was representative of the various wage-earning groups and different nationalities, and every family in each block was canvassed.

A recent sickness survey was made in Philadelphia by the nurses of the City Department of Health. This study, which covered 12,019 persons in seven typical industrial districts in Philadelphia, revealed 514 cases of serious illness, making an average daily sickness rate of 4.28 per cent of the population. Of these cases, however, only 36.7 per cent were "unable to work," showing that an average of 1.57 per cent of the persons in the areas visited were afflicted each day with sickness which actually disabled them, and that each person suffered approximately 5.7 days of disabling illness each year.

Because of the care with which this survey was made, and the close agreement between its results and those of the Metropolitan Life Insurance Company's study of cities in western Pennsylvania, the insurance commission considered it a fairly accurate measure of sickness conditions in the state, and concluded that 1.57 per cent of the population is

constantly suffering from disabling, and 2.71 per cent more from slighter but still serious illness; "the average number of days of disabling sickness of adults per year is probably over 7, and the average number of days lost from work is about 6." More complete investigations, however, would, in the author's opinion, show higher sickness rates.

The assumption that among wage-earners the average amount of sickness equals about 9 days per annum is based upon European data of doubtful application to this country. This fact was brought out by the special investigations in California showing less than 6 days per annum. It probably depends somewhat upon the definition adopted and as to whether or not prolongation of sickness is encouraged by liberal cash payments under compulsory health insurance laws.

THE ROCHESTER SICKNESS SURVEY

An unemployment survey made by the Metropolitan Life Insurance Company in conjunction with the Bureau of Labor Statistics of the federal government, during 1915, and covering over a million wage-earners in selected cities of the United States, developed the interesting fact that 11 per cent of the unemployment was caused by sickness or accident disability. Over 1 per cent (1.2) of all the wage-earners canvassed were unemployed on account of illness.

In the Rochester, New York, sickness survey, without qualification of age period or extent of disability, 21.4 males and 24.8 females out of each 1,000 living were reported sick. Sicknesses involving incapacity to follow the daily pursuits of life occurred at a rate of 17.8 per 1,000 for males and 20.4 per 1,000 for females. If we eliminate both the well and the sick under ages 15 — that is, children from whom it was more difficult to obtain a precise statement of the facts of sickness — we have rates of 27.3 per

1,000 for males and 31.2 per 1,000 for females, including all sicknesses; for sicknesses involving incapacity for work, the rates for ages 15 and over were 23.2 per 1,000 for males and 25.7 per 1,000 for females. Broadly speaking, over 2.5 per cent of the working population canvassed were sick and unable to work at the time of the survey.

The chief causes of disability were 73 cases of rheumatism, 37 cases of tuberculosis of the lungs, 34 cases of cerebral hemorrhage and paralysis, and 25 cases of mental alienation (insanity). There were also 56 persons disabled by chronic headache and neurasthenia, and 29 cases of ulcers and other diseases of the stomach. Childbirth and the conditions incidental to childbearing caused 25 cases of disability. Other diseases and conditions were represented by smaller numbers, but were nevertheless of particular interest from a public health standpoint. Four cases of typhoid fever, 16 cases of acute infectious diseases of children, namely, measles, scarlet fever, whooping cough, and diphtheria, were reported. Twelve of this group of diseases were cases of whooping cough.

Among the 137 cases of sickness which did not result in disability for work, the largest number were rheumatism, 26 cases, diseases of the nervous system, neurasthenia, chronic headaches, etc., 14 cases, and diseases of the stomach, other than ulcers, 10 cases.

The sickness rates developed by this survey are for many reasons minimal. Seasonal conditions were favorable in a month which for Rochester has less mortality than the monthly average for the year. The application of the sickness rates derived from the survey to the computation of the sickness losses in the community generally, will therefore produce conservative figures. The estimated male population of Rochester 15 years of age and over for this year was 92,552. On the basis of the above sickness rates

we may conclude that there are throughout the year at least 2,147 males constantly sick. This means approximately 644,000 days of disability for males alone, for we may count on 300 working days per year per individual. At an average daily wage of \$4, the wage loss alone for a year in a city like Rochester would be \$2,576,000, and this figure does not include the cost of medical attendance, drugs, nursing, etc.

A SICKNESS SURVEY OF NORTH CAROLINA

There were 1,881 cases of illness among 66,007 persons canvassed, or a rate of 28.8 per 1,000 of all ages. This means that nearly 3 per cent reported sick among the population reached. These figures compare unfavorably with those of Rochester, where the corresponding ratio was less than 2.5 per cent.

Rheumatism (all forms) is again the most important single condition, being responsible for 9.3 per cent of all cases and for a rate of 213.6 per 100,000; the rate in Rochester was 211.7. In the federal census of sickness in 1890 it was likewise found that the various forms of rheumatism together constituted the largest single item in the list of diseases; at that time, however, the rate obtained was 432 per 100,000 or over twice that of these recent studies.

General diseases were, as a group, responsible for the largest share of the morbidity, accounting altogether for 859 cases per 100,000 examined (37.5 per cent of all cases); diseases of the nervous system and of the organs of special sense came next, with a rate of 286.3 per 100,000 (12.6 per cent of the total morbidity). The relationship was exactly reversed in Rochester; diseases of the nervous system stood first, with a rate of 429.9 per 100,000 (25.7 per cent) and the general diseases came next with a rate of only 481.3 per 100,000 (25.1 per cent). Mental alienation (insanity) was

responsible for only 1.1 per cent of the morbidity of North Carolina, in contrast to 3.8 per cent in Rochester. The lesser prominence of nervous diseases in North Carolina is perhaps the result of the mode of life in a state largely rural in character, in contrast with that of an industrial urban community like Rochester.

A little over 3 per cent of the population reached in North Carolina at ages 15 years and over, are constantly sick, and in 80.4 per cent the illness is serious enough to render them unable to work. This figure is somewhat higher than that found in Rochester, but not materially so. On the basis of the sickness rate (with disability) for ages 15 and over, we obtain the very interesting deduction that the average number of days of disability per annum, per capita of population, is 7.6 for white males and 10.2 for white females. The corresponding figures for the colored race are 7.4 for males and 11.3 for females. These results are in very close agreement with the best data available from other sources, both American and European, as to the number of days of disability per person per year. The latest German figures covering the year 1913 give 8.8 days for males and 9.8 for females insured in the sickness societies of that country. According to these figures we would conclude that from 2.5 to 3 per cent of the community at the working ages are constantly sick, involving a loss of about 9 working days per person per year in the entire population.

A SICKNESS SURVEY OF BOSTON

In all 1,902 cases of sickness were recorded. This is equivalent to a rate of 19.6 persons sick in 1,000 persons canvassed, or about 2 per cent. The sickness rate is fairly constant for each of the several districts in Boston. The rate, as a whole, is distinctly lower than in other surveys. It is of course possible that the very favorable condition

shown for Boston is in part the result of the season of the year when the survey was made, namely, the midsummer.

The following are the principal findings of the Boston survey:

1. Close to 2 per cent of the population of Boston was sick.

2. Slightly more than 90 per cent of the total cases of sickness involved disability for work.

3. The principal diseases responsible for the sickness registered were rheumatism, organic diseases of the heart, tuberculosis of the lungs, diseases of the kidneys, and diseases and conditions of the puerperal state.

4. The proportion of cases sick less than one month up to the date of the survey was only 26.3 per cent of the total. This was slightly higher than the finding for Rochester, New York, but considerably lower than the proportion of cases sick less than one month in North Carolina.

5. Of the total cases 72.9 per cent received medical attention; this is a higher percentage than that developed in either of the preceding surveys. This finding reflects the excellent medical facilities available in the city of Boston.

6. The economic loss resulting from sickness in Boston is considerable, involving the loss of earnings for about 7 days per person per year.

CONCLUSIONS FROM THE PITTSBURGH SURVEY

The following are the principal findings in a similar survey of sickness in Pittsburgh:

1. A little over 1.5 per cent of the population was reported sick. This rate is the lowest as yet found in any of the surveys.

2. Nearly 96 per cent of the total cases of sickness involved disability for work.

3. The principal diseases and conditions responsible for

disability were the accidents and injuries, rheumatism, influenza, tuberculosis, colds, and the mental disorders.

4. Of all the cases of sickness recorded, 75.8 per cent received medical attention.

5. The average loss in days from sickness per male worker in Pittsburgh is estimated as over 6 days, while that for females was somewhat under this figure, namely, 5.5 days.

DISABILITY BY AGE AND OCCUPATION ¹

With the exception of the estimates furnished by the recent health surveys of the Metropolitan Life Insurance Company, and some fragmentary data based upon the experience of certain established funds, no exact measurement has ever been made of the annual average number of disability days per wage-earner by age and occupation in the United States. The study of the Federal Bureau of Labor Statistics upon which this article is based furnishes, therefore, the first official and exact measurement of such disability among wage-earners.

The results obtained in connection with the study, show an average annual number of disability days of 6.6. This figure is to be considered as reliable because it is an actual measurement and not an estimate; it is based upon the disability experience of more than 40,000 wage-earning persons engaged in over forty-two separate and distinct occupations. Seven days, or thereabout may, therefore, be said to be the annual average number of disability days per wage-earner in the United States.

One of the exceptions, more apparent than real, seems to be tobacco and cigar workers who, because of their work, are known to be frequently affected with tuberculosis, which is in these workers an industrial disease. The group of

¹ This section is based upon data contained in an unpublished study made recently by the United States Bureau of Labor Statistics.

workers shows an average disability of 8.01 days per year per worker as against 6.61 days per year which is the average for all occupations.

Miners show the highest annual average number of disability days, 9.7 as against 6.61, the average for all occupations. Freight handlers are the next group in point of disability, with an average number of disability days per member of 9.6 days per year. Drivers, with an average of 8.6 days of disability per member, come next. Jewelers and professional workers show the least extent of sickness, 3.6 and 2.6 days, respectively, per year. The high disability extents of the first three groups is accounted for, no doubt, by the hazardous character of the work which makes for frequent industrial accidents. It is a generally recognized fact that certain vocations are much more hazardous to health than others.

The figures show the following facts regarding the extent of disability shown by the average annual number of disability days per member. The largest average number of disability days, 9.7 per year, or 47 per cent greater than the average, was found among freight handlers. The high disability rate is, therefore, to be accounted for by sickness due to accidents and physical overstrain which are known to be very frequent because of the character of certain occupations. The same point may be made regarding the miners, who show the next highest average number of disability days, 9.1 per member, or 37.9 per cent greater than the average for the entire group. Drivers, with an average age of 42 or about one year below that of the group, show an average disability days per member of 8.4 days, or 27.3 per cent greater than the average. Professional employees, jewelers, trade, and clerical employees appear to be, in the order named, the least sickly workers. Respectively, these occupations show the following extents of sickness below the

average. Professional, 56.1 per cent; jewelers, 43.9 per cent; trade and clerical, 30.3 per cent.

SICKNESS IN GENERAL

Judging from the English and American statistics of illness, we must conclude that at all times in the United States about 3,000,000 persons are seriously ill, of whom about 500,000 are consumptives. Fully half of this illness is preventable.

According to Farr, for every death there is an average sickness of 2 years, or for each death per year there are two persons sick throughout the year. This would mean in the United States that, as there are about 1,500,000 annual deaths, there always will be about 3,000,000 persons on the sick list which is equivalent to about 13 days per capita. Other authorities estimate the number of sick in this country at a much higher figure — even up to 4,500,000.

Another investigator concludes that: "Out of a population of 110,000,000 only 19,500,000 are in full vigor, with perhaps 37,500,000 in fair health. Almost one-half the population (45,000,000) is thought to be more or less physically imperfect."

Davenport has pointed out the startling fact that of the 2,000,000 persons who are annually cared for in our hospitals and asylums, 500,000 are mental defectives; and of over 180,000 paupers and criminals, by far the great majority owe their defects and their dependency to bad heredity — to defective germ-plasm.

One-third of Chicago school children have some nervous disorder, and two-thirds of New York school children are reported physically defective.

The reports of the Chief Medical Officer to the Board of Education shows that of the 6,000,000 children registered in the public schools of England and Wales, far more than

half of them exhibit very pronounced evidence of inherent constitutional weakness.

In order to find and then correct defects of eyes, ears, teeth, etc., and properly apply our hygienic knowledge, medical inspection of schools is necessary. Such inspections as have been made disclose an astonishing amount of ill health, the percentage of morbidity being from 20 to 60 per cent. The committee of physical welfare of school children in New York found that 66 per cent needed medical or surgical attention or better nourishment; 40 per cent needed dental care; 38 per cent had enlarged glands of the neck; 31 per cent defective hearing; 18 per cent enlarged tonsils.

The death-rate has declined, as Dr. Tredgold well remarks, "not because the nation is more resistant to disease, but because modern science has lessened its frequency and modern skill in treatment has diminished its fatality."

It was once believed that human mortality followed an "inexorable law." Facts, however, show that mortality varies in different places, that heredity has much to do with longevity, and that the death-rate is decreased by hygienic living and improved sanitation. The length of life in Sweden and Denmark is over 50 years; in the United States and England, about 45; in India less than 35 years.

SPECIAL DISEASES

Heart disease now stands at the top of the mortality tables for the United States. Over 7,000,000 people now living will die of some form of heart trouble; while over 6,000,000 of those now living are destined to die of pneumonia.

The death-rate from the degenerative diseases of the heart, blood vessels, and kidneys, including apoplexy, has increased over 100 per cent since 1880. These diseases claim about 400,000 lives annually. Fully 60 per cent of these •

deaths are preventable or postponable if the disease is discovered in time.

There are constantly ill in the United States of tuberculosis about 500,000 persons, of whom about one-half are totally incapacitated, while the remainder are half incapacitated.

Cancer, a baffling disease, possibly of the degenerative class, to which our people in their present physical condition are highly susceptible, claims 75,000 lives annually and is increasing very fast. Reported deaths from external cancer alone have increased 52 per cent in ten years.

Over 25,000 Americans are still sacrificed annually to that preventable filth disease — typhoid fever. About 300,000 annually suffer from it and are more or less impaired by some of its after-effects.

Hookworm disease in the South is a chief cause of incapacitation, especially among the poor whites. For this reason the hookworm has been nicknamed the "germ of laziness." It is believed that a sufferer from hookworm disease is incapacitated from one-fourth to one-half the time.

Malaria is one of the diseases which are fatal relatively seldom, but which shorten life by predisposing to other causes of death and narrows life by reducing working efficiency by a large percentage. Doctor Howard states that each year there are probably 3,000,000 cases of malaria in the United States, most of which are in the South. This is practically all preventable.

Those who neglect colds, or what seem to be colds, will be far more likely to become victims of tuberculosis or pneumonia. No reliable statistics of the prevalence of minor ailments exist. Physicians, whose experience gives them good opportunity to judge, place the time lost annually for each person from minor ailments at three or more days a year.

Venereal diseases, together with cancer, tuberculosis, and the "old-age" disorders will be more fully discussed in subsequent chapters.

ACCIDENTS AND VIOLENCE

About 100,000 Americans are killed annually by accidents and various forms of violence. Our efforts to prevent the steady increase of this waste have not been wholly successful.

American railways in one year killed nearly 12,000 and injured over 100,000 persons. The deaths and disablements from accidents in industry represent a great and needless impairment of efficiency.

John Mitchell once estimated that for every hundred thousand tons of coal produced in the United States one mine worker is killed and several injured.

Suicides are increasing and will soon reach the enormous total of 15,000 annually.

Over 10,000 murders are committed every year, and it is estimated that but an average of one in 116 murderers are executed for their crimes. We have the appalling estimated homicide record of over 100 per 1,000,000 population, as against 7 in Canada, 9 in Great Britain, and 15 in Italy.

It is startling to be told that there are more inmates in institutions for the insane than there are students in all the colleges and universities of the country. This whole question of feeble-mindedness and insanity will be fully considered in Part II of this work.

FATIGUE AND NERVOUS DISORDERS

Neurotic disorders accompanied by undue fatigue sensations are responsible for an enormous amount of "lost time" and general inefficiency in this country. Not only heredity, but also alcohol, tobacco, and errors of diet contribute either directly or indirectly to this sort of semi-nervous exhaustion.

When excessive amounts of the protein element in food (exemplified in white of egg or the lean part of meat) are eaten, they putrefy in the large intestine, producing auto-intoxication. For this and other reasons there is a present tendency among physiologists to advise a reduction in the use of such foods from the amounts customary in many countries, and especially in the United States. Auto-intoxication induces fatigue. The endurance of those using high protein and of those using low protein shows in general, although with some exceptions, that the former have less endurance than the latter.

As a rule, this elusive fatigue is associated with some sort of functional nervous disorder which, in turn, may owe its existence to numerous and varied causes — not excepting hereditary predisposition.

CAUSES OF NERVOUS DISORDERS

1. Heredity plays a vital part in disorders of the nervous system. Over 90 per cent of these cases show a distinctly tainted (neurotic) ancestry in their history. This hereditary taint runs all the way up from worry and temperamental peculiarities to alcoholism and insanity.

2. Chronic fear of some sort is the fundamental mental state which is characteristic of the vast majority of these patients. Faith is the mental medicine which is essential to their cure. Faith in a patent medicine, a new cult, a quack doctor, or a quack preacher, in a new system of fake medicine or a new religion — they all work equally well.

3. Among the more common factors of worry and nervousness may be mentioned supposed inherited fears and pre-natal markings, definite dreads, hoodoos, muscular tension, mental and motor obsessions, such as counting one's steps, etc., not to mention numerous health fads and practices.

4. A careful analysis of almost a thousand histories does

not show "Americanitis," or our so-called high-pressure living, to be such a large factor in their causation as one might naturally suspect. While overwork is an occasional factor of prominence, on careful analysis, it usually proves to have been a case of overworry, quite often associated with overeating.

To recapitulate, the known causes of "nerves" in the order of their frequency and importance, are:

1. Heredity.
2. Abnormal mental habits and defective will training.
3. Occupational factors — living and working conditions.
4. Bad physical habits and unhygienic practices.
5. Associated physical diseases or other functional complications.
6. Chronic poisoning — derangements of metabolism, disease toxins, and drug poisons, such as alcohol, tobacco, tea, coffee, etc.
7. Psychologic influences, prejudices, worries, etc.
8. City life and modern high tension.

PROLONGATION OF LIFE

Professor Irving Fisher, in his discussion of life extension, says:

It is impossible to estimate the effect on the length of life of the partial elimination of various diseases. Using the statistics, experience, and estimate of eighteen physicians as to the preventability of each of the list of ninety causes of death, we find that the length of life could easily be increased from 45 to 60, an increase of one-third, or 15 years. This would result in a permanent reduction to death-rate of about 25 per cent. The principal reductions would be from infantile diarrhea and enteritis, over 60 per cent of which could be prevented, with the result of an addition to the average length of life of 2.32 years. Broncho-pneumonia, also an infant disease could be prevented to the extent of 50 per cent, whereby life would be lengthened by 0.60 year. Meningitis, which is usually fatal at the age of 2, could be prevented by at least 70

per cent, and this prevention would lengthen the average life by 0.60 year. Eighty-five per cent of death by typhoid fever is unnecessary, and if avoided would lengthen life at least 0.65 year. It would be feasible to prevent at least 75 per cent of cases of tuberculosis of the lungs, and thereby to lengthen life by about 2 years. If the deaths from violence were reduced only 35 per cent, human life would be increased by 0.86 year. The prevention of 45 per cent of cases of pneumonia would lengthen life by 0.94 year. These seven diseases alone could easily be reduced by these amounts so as to lengthen life by 8 years. This could be done simply through insistence by the public on pure milk, pure water, pure air, and reasonable protection from accidents.

OLD AGE IN SPITE OF DISEASE

Notwithstanding the dictum of the psalmist, who prescribed, for the average span of human life, the proverbial "three score years and ten," we believe that in the light of our present scientific knowledge and in view of all the means and methods which we possess of combating disease and promoting health, the average sane and healthy human being (except those belonging to hereditarily short-lived strains) could easily live to be a hundred years of age.

The recent census (1920) has disclosed that we still have a few centenarians left in this country, and we believe that the future will enable old men and women to be more efficient than heretofore, and that there will be little talk, in coming generations, of chloroforming our older citizens upon reaching the age of 60 years.

John Shell seems to be still living in Leslie County, Kentucky, and at this writing is alleged to be over 131 years old. He is said to be in fair possession of his faculties, and not infrequently rides twenty miles a day on horseback. The evidence available, however, suggests that this man is probably not over 100 years old.

In Prussia, a woman is reported alive at 125 years, having recently lost two children, one dying at 89 and the other at 100 years.

Mrs. Margaret Edminson, Mt. Vernon, Illinois, is now 120 years old and well preserved; is in full possession of her faculties and doesn't even wear glasses.

Mrs. Mary A. Potter, Dwight, Illinois, is 106 years old. James McGowan, Wilton, Illinois, is 104 years old, walks several miles a day and is enjoying excellent health, while John Harouff, of Chicago, has passed his 104th birthday and is hale and hearty.

Mrs. Anna Casperson, of Chicago, is over 103 years old; has worked hard all her life, and offers work as a recipe for long life. Mrs. Anna Burian, of Chicago, is also 103 and is hale and hearty.

Others 100 years old or over are: Timothy Carmody of Aurora, 103, and Mrs. B. Mulligan of Aurora, 100.

Flourens claims that mammals should live to a period equal to not less than five times the period of attaining full growth. If this rule is applied to the human species, it would make the average life of man about 100 years, as we are nearly twenty years attaining our full development.

It has come to the place where it really seems that most human beings, when they are not engaged in something which contributes indirectly to their untimely death, are engaged in other practices which directly contribute to bringing about various forms of sickness and other causes of minor disability, which so greatly cripple their health and handicap their usefulness.

THE "HEALTH SPAN" OF LIFE

The span of life in this country is about sixty years, and for a century or so we have had in our minds the extension of this average life span beyond the sixty years. But these sixty years are not sixty health years; just sixty years of living, full of more or less ill health and physical decrepitude. The "health span" of life, as Dr. Eugene Fisk calls it, is

a much more important matter than the length of life. That "health span" is just about ten years. When our robust, healthy citizens learn the fact that no matter how long they live, they are certain of only ten years of exuberant well-being, they are going to stop a moment in the rush of things and take thought. They are going to insist on physicians lengthening that "health span;" and as soon as the physicians also learn this fact, which few now know, they too will turn their attention to the healthy people and do their part to extend the "health span" of the race. The ailments that impair health are mostly minor and remediable, forerunners perhaps, but not the serious disorders from which people die.

Says one writer: "More than 16,000,000 children of our 22,000,000 now in the public schools have physical defects, most of them preventable and remediable, such as heart and lung diseases, disorders of sight and hearing, diseased adenoids and tonsils, flat-feet, weak spines, imperfect teeth and malnutrition, and among them 1 per cent of mental defect." These facts are mentioned to show how much work there is to be done by physicians among the supposedly healthy members of any community.

For the full discussion of the Economic Losses from Sickness, the reader is referred to Appendix B—where the author has endeavored to present the more recent estimates of the leading authorities and investigators who have been engaged in the study of this phase of economics.

SUMMARY OF THE CHAPTER

1. Health is our greatest national resource. We suffer enormously from sickness which is largely preventable. We need a national health revival.
2. Sickness is responsible for much of our poverty, failure, misery, inefficiency, and social and domestic friction.
3. Heredity is also a factor in the general picture of human sickness, sorrow, and premature death.

4. Let us avoid "health fads" and shun hygienic extremes.
5. In the sickness surveys of 376,573 people, 8,636 were disabled; experiencing the loss of almost 7 working days per year per person.
6. In Pennsylvania they found 4.28 per cent of the population sick all the time.
7. In Ohio they found 3 per cent sick constantly; and each working person losing 9 days per year from sickness.
8. In Philadelphia 4.28 per cent of the people were found to be sick all the time; in Rochester, New York, 2.5 per cent of the working population was found sick.
9. The North Carolina survey showed 3 per cent of the people sick all the time; rheumatism being the chief complaint.
10. In Boston 2 per cent were found disabled and the chief ailments were rheumatism, heart disorders, and tuberculosis.
11. The average disability for adult workers in this country is just about 7 days per year as compared with 9 days for Europeans.
12. In the United States 3,000,000 persons are sick all the time; 500,000 of this number are consumptives. Some estimate 4,500,000 constantly ill.
13. For every death there is an average sickness of two years.
14. Out of 110,000,000 population less than 20,000,000 are in robust health; 37,500,000 are in fair health; about one-half (45,000,000) are physically imperfect.
15. Of the 2,000,000 persons cared for in public institutions each year, 500,000 are mentally defective, and almost 200,000 paupers and criminals.
16. One-third of Chicago school children are nervous; and two-thirds of New York pupils are physically defective.
17. One-half of the school children of Great Britain are suffering from constitutional weakness.
18. Medical inspection of the schools is one of the crying needs of the times.
19. Over 7,000,000 persons now living in the United States will die of heart disorders; over 6,000,000 of pneumonia.

20. Since 1880 the death-rates for the degenerative diseases (heart, arteries, and kidney) have increased over 100 per cent. They claim 400,000 lives annually at present.

21. Cancer kills 75,000 annually; and typhoid still claims 25,000 each year.

22. Venereal diseases, malaria, and hookworm disorders are still to be conquered. There are still 3,000,000 cases of malaria in the country.

23. One hundred thousand Americans die annually from accidents and violence. The railroads kill 12,000 and injure over 100,000 every year.

24. One miner is killed for every hundred thousand tons of coal taken out of the earth.

25. There are over 10,000 murders a year and only one in every 116 murderers are executed.

26. There are more inmates in the insane asylums than there are students in all our colleges and universities.

27. Functional nervous disorders seem to be greatly on the increase in recent years.

28. The causes of our nervous disorders are: heredity, fear, working conditions, bad habits, disease, and modern high tension.

29. In spite of the increase in disease, we still find a considerable number of centenarians alive in this country.

30. The "health span" of life in this country is only about ten years. We live almost sixty years — but on the average enjoy only ten years of good health for each individual.

CHAPTER V

TRIUMPHS AND FAILURES OF PREVENTIVE MEDICINE

IT IS almost universally conceded that during the past twenty-five years enormous advances have been made in hygiene, sanitary science, and preventive medicine, not to mention curative medicine, surgery, etc. While we are justified in congratulating ourselves on all the advances made in this important work of preventing disease and promoting health, perhaps it would be well to sort of strike a trial balance and actually find out just where we are gaining, where we are losing, and about where we are standing still. It will be the purpose of this chapter, first, to consider the triumphs of preventive medicine during the last forty or fifty years, and then clearly to point out our present failures and defeats, that the reader may gain a clear idea of the present status of the health movement in America.

ANCIENT SANITATION

The science of sanitation goes back to the dawn of history — back to those wonderful civilizations of five thousand years and more ago. The early beginnings of sanitary science and preventive medicine are to be found in Assyria and Babylonia, Egypt and Crete, Greece and Rome.

One of the earliest-known civilizations of the world was that of the ancient Sumerians, who inhabited the broad valley north of the Persian Gulf between the Tigris and Euphrates rivers, now called Mesopotamia. Recent excavations have shown that the dwellings of these people were provided with

drains and other sanitary conveniences. Since the country was flat and the soil sandy, the work was individual and not a community enterprise. No attempt was made to build sewers for these municipalities of six thousand years ago, but each householder constructed his own drain and cesspool after the manner of the Arabians of the present day.

One writer suggests that "The Egyptians worshiped the scarabaeus, or dung beetle, possibly recognizing its scavenging powers and its contribution to sanitation." Herodotus tells us that the Egyptians kept their houses clean, bathed frequently, and attempted to obtain unpolluted water for drinking purposes.

But the ancient Hebrews were the real founders of the modern public health movement. The laws of Moses (born about 1600 B.C.) contained numerous hygienic laws and ordinances, most of which apply just about as well today as they did when they were first promulgated. The influence of Egyptian learning on Moses and his work is suggested by this passage from the Bible: "And Moses was learned in all the wisdom of the Egyptians, and was mighty in words and in deeds." (Acts 7:22.)

The ancient city of Jerusalem was well sewered and had a good water supply. Previous to the eighth century before Christ the city had two aqueducts, one from the pools of Solomon and the other from the pools of Hezekiah, outside the city walls. "In 727 B.C. King Hezekiah built a vast reservoir, called the pool of Siloam, near the gates of Jerusalem. The existing water supply was insufficient to fill it, so he constructed a tunnel through the solid rock of a hill behind the city. His workmen began at both ends and met accurately in the middle."

The most extensive and elaborate sanitary engineering of olden times has been recently brought to light on the island of Crete. The ancient palace at Cnosus dating back to about

2100 B.C., has a wonderfully complete system of drainage and sanitation.

Cyrus (559-529 B.C.) was a wise military commander and is said always to have taken provisions and drinking water from home when on his military campaigns. He had the water boiled, suggesting that the value of this common process of sterilization was known to these ancient peoples.

One authority gives the following bit of interesting information:

In America the oldest evidence of sanitary science is given by the wells along the valley of the Mississippi, which are believed to have been built by primitive peoples many centuries before Christ. One in particular in the hills of Yucatan is worthy of mention because it is bored to a depth of 100 feet and then through a horizontal gallery 2,700 feet long before water is reached.

In 625 B.C. an engineer named Eupalinius constructed a tunnel 4,200 feet long and 8 feet square in order to supply water to the city of Athens. The first sanitary engineering for Rome and Carthage was probably performed by Greek engineers, as the designs of all are similar.

Hippocrates advocated the boiling, or filtering of all drinking water.

Much of Roman engineering was devoted to sanitation. The city of Rome had sewers as early as 800 B.C. In 735 B.C. was built the famous Cloaca Maxima, which is still in use today, 2,656 years later. It is 12 feet high, 11 feet wide and is lined with cement. Every Roman street had its lateral sewer diminishing in size as the distance from the main sewer increased. The great aqueducts of Rome are monuments to the genius of their engineers. Like the sewers, some of them are still in use.

DAWN OF MODERN SANITARY SCIENCE

With the discovery of the microscope the modern era of preventive medicine and sanitary science was ushered in.

The dawn of modern medicine dates from our ability to recognize, cultivate, and study microbes. The germ theory of disease effected a complete revolution in sanitary methods and pointed a way for those magnificent achievements in disease prevention which so increasingly characterized the sanitary efforts of the nineteenth century in general, particularly its closing decades.

Public health administration, with all its details of quarantine regulation and contagious disease control, in fact the whole far-flung battle-front, in the struggle against contagious diseases and infectious disorders, had been brought up to a point of high efficiency and extraordinary accomplishment by the dawn of the twentieth century. For untold ages the microbe had reigned almost supreme and had worked at will its mischievous career on earth, but the moment the struggle became one of the microbe versus the microscope the death knell of the supremacy of germ diseases was sounded, and although the victory is not yet completely won, the past half-century has been marked by a succession of brilliant achievements on the part of a long list of untiring investigators who, when we consider the value of their work, in the terms of human lives saved, could be appropriately denominated "the uncrowned heroes of health."

This new modern era of preventive medicine has not only been characterized by the extraordinary development of sanitary engineering and other methods of fighting the so-called "filth diseases," but it has likewise been instrumental in bringing about tremendous advances in the realms of personal hygiene, industrial hygiene, and other phases of public health improvement. These activities have reached out to embrace such matters as prevention of food adulteration, improvement of both water and milk supply, improved plumbing and sewage disposal, the combating of flies, dust, and other atmospheric contamination, the improvement of sanitary con-

ditions in both workrooms and living apartments, not to mention the tremendous advances in the sanitary and health management of the early years of child life, which has so enormously cut down the frightful infant mortality of fifty years ago.

Modern hygienic and sanitary teaching, as now so freely popularized and made accessible to the general public, has brought us the knowledge of the causation of the majority of ordinary diseases, has pointed out the method of their mastery, and also designated the practical steps to be taken by both the individual and the public as a whole, in order to effect their speedy and complete subjugation as menaces to human health and efficiency. The microscope demonstrated the cause of the contagious diseases, and the development of modern science has clearly pointed out the path of deliverance, and we have every reason to hope that in the near future those diseases which have so far defied all scientific efforts to bring about their overthrow will soon have their microbic causes disclosed and their ultimate remedies or methods of attack discovered and put into successful operation.

MASTERING THE MICROBE

The natural normal man is mightier than the microbe. The healthy man is not attractive to the ordinary, average disease germ—unless in the case of a widespread epidemic, such as smallpox, influenza, pneumonia, etc.; and so, while we are on the way to a realization of the fulfilment of the prophecy that “it is within the power of man to drive all microbic diseases from the face of the earth,” while we are succeeding in our struggle with the microbe in this gigantic war which is being waged between the trained forces of science on the one hand and the malignant forces of disease on the other; nevertheless, we are losing out in our efforts to overcome many of the non-microbic maladies.

Disease microbes attack men when they are already sick, when they are run down and weakened from some cause or other, for the very same reason that moss grows only on the shady side of an old dead or dying tree. In other words, as a general proposition, you have got to get sick constitutionally before you take sick with "bugs" — except as in the case of the epidemics previously mentioned.

Typhoid fever has about departed. I get vaccinated every few years, and I don't fear the disease, even if somebody else is unclean and insanitary. Vaccination will protect against all but the most gross infection, but of course this fact should not cause us to slacken our efforts to improve all water and milk supply, as regards typhoid infection.

Our soldiers in the World War did not die like flies, as they did in the South during the Spanish-American War, from typhoid fever. We have made that improvement in the work of preventing typhoid fever, that according to the latest American statistics, the typhoid-rate throughout the United States is not over 10 per 100,000. This would suggest that about one-twentieth of our population may expect to have typhoid fever at sometime during life. While this is a great improvement over conditions as they were twenty-five or thirty years ago, it is not at all satisfactory, as Great Britain has a typhoid death-rate of only 3.5 per 100,000, a great deal less than half of our rate. We not only ought to reach a typhoid mortality rate as good as that of England, but we ought not to stop until we can equal that of Chicago, which is practically only one death per 100,000 of population. In fact typhoid has become so rare in Chicago that the moment a physician suspects it, he immediately asks the patient what part of the country, outside of Chicago, he came from. In Chicago, we regard typhoid fever as a "country" disease. The "old oaken bucket, the moss-covered bucket that hung in the well," in years gone by, too often

brought up the deadly bacilli of typhoid, to be quaffed by the innocent and thirsty patrons of the well in which it hung.

The farmer must learn three things about typhoid fever, in order to lessen the country death-rate. First, the danger of the open privy vault; second, the ease of infecting the open dug well; and third, the rôle of flies as typhoid carriers infecting milk and other foodstuffs. The most important thing in the prevention of typhoid fever is to clean up; discard all suspected sources of drinking water, screen the flies, take care of the matter of sewage in a satisfactory manner and having done all this to prevent the disease, it can be further guarded against by anti-typhoid vaccine, and by treating the drinking water so as to destroy the "bugs."

The beneficial results of modern sanitation have been more generally enjoyed by the larger centers of population. The big cities have experienced a lowering of the disease and death-rates to a greater extent than has been enjoyed by the rural communities; but it is to be hoped that the country districts of the United States will soon catch up with their city cousins in the good work of sanitation and other disease-preventive procedures.

NATURAL SELECTION

One hundred or two hundred years ago the populations of the civilized nations were periodically overrun by various plagues and epidemic diseases. These scourges were unrestrained by quarantine and sanitary science, and while the death-rate was appalling, nevertheless, to the race as a whole, these epidemic plagues served a more or less useful purpose — they served to weed out the sickly, the feeble, and the less desirable members of society, and thus, indirectly, they contributed much to keeping the stock vigorous and strong. Today, science is bringing under control these epidemic methods of natural selection, and is

unintentionally protecting and preserving the mentally and physically inferior strains of the race, which live on, intermarry with the strong, normal stock of the nation, and thus deteriorate the constitutional stock of the American people from generation to generation.

The public health movement of the nineteenth century was a wonderful scientific achievement, but it is serving the purpose of weakening the nation, as a whole. We do not mean to belittle the blessings which sanitation has bestowed upon the race. These things are all humanitarian, not to say philanthropic, but considering the purely physical good of future generations, they will prove, in the end, a curse, if we do not inaugurate hand in hand with public hygiene, an intelligent and effectual propaganda of personal and race hygiene. The hygienic care of the health of the individual on the one hand, and the eugenic safeguarding of the mental stamina of the offspring of the next generation, on the other hand, are all part of the efforts that must be made to counteract the annulment of the laws of natural selection by modern sanitary science and other public health activities.

During the last hundred years bubonic plague (black death), Asiatic cholera, typhus fever, leprosy, smallpox, yellow fever, malaria, diphtheria, eye infections (trachoma), and numerous infantile diseases which in past centuries swept over the civilized nations from time to time as devastating scourges, have all been either wiped out or else subdued to that point where they no longer menace civilized society.

Tuberculosis and venereal diseases — together with influenza and pneumonia — are not yet in subjection; they are only the exceptions which serve to prove the rule of the certain and successful overthrow of the plague-terrors of the ancient world.

No longer do we fear the invasion of our country by these

devastating maladies. Vaccinations against smallpox would wipe it out in a single generation if universally practiced. Yellow fever has left our shores if, indeed, it has not been driven off the face of the earth — having made its last stand in Ecuador. The final overthrow of malaria only awaits the intelligent application of the known laws of anti-mosquito breeding and the judicious use of quinine in the case of those persons already infected. The preventive and curative use of antitoxin would soon serve to vanquish what remains of the terror of diphtheria. There are certain disorders which remain more or less unconquered — dealt with more fully in subsequent chapters.

ADVANCES IN MILITARY MEDICINE

In no other department of medicine (unless it be in the recent achievements in lessening the infantile death-rate) does the work of modern preventive medicine cover itself with such glory, when it comes to preventing disease and lessening mortality, as is shown in the achievements of the medical departments of the armies of the nations engaged in the recent World War. Outside of the one failure, which stands out so conspicuously — that of the influenza epidemic and its associated pneumonia — the deaths from preventive disease in the army were almost negligible.

In the first place, our old military friends, typhus fever, Asiatic cholera, etc., did not even put in an appearance, and from September 1, 1917, to May 2, 1919, with an average muster roll of over 2,000,000 soldiers, only 5 men died from smallpox, only 213 from typhoid fever, and the old plague of malaria hardly appeared, only 13 deaths being recorded.

Of course, there occurred unfortunately, during the time of our recent military mobilization, a veritable plague of influenza associated with pneumonia, and this with its various complications — pleurisy, empyema, etc., carried off

41,747 soldiers, emphasizing most emphatically that in the presence of the triumphs of military preventive medicine, there are certain phases and features of disease which we have done little or nothing to prevent, control, or combat.

A study of the following table, which compares the deaths in the army during the recent World War, and showing what, with the same sized army, the deaths from these various diseases would have been, both in the Spanish-American and in the Civil War days, is one way of graphically emphasizing and showing the great advances of preventive medicine, as regards the health of an army.

SOME INTERESTING FACTS CONCERNING THE DEATHS IN THE U. S. ARMY (Including the A. E. F.) FROM DISEASE DURING THE WORLD WAR

DISEASE	Number of deaths that occurred in World War, Sept. 1, 1917—May 2, 1919. Average approximately 2,121,396.	Number of deaths that would have occurred if the Civil War death-rate had obtained.	Number of deaths that would have occurred if the Spanish-American War death-rate had obtained.
Typhoid fever.....	213	51,133	68,164
Malaria.....	13	13,951	11,317
Dysentery.....	42	63,898	6,382
Smallpox.....	5	9,536	37
Pneumonia.....	41,747	38,962	6,086
Scarlet fever.....	167	112	222
Diphtheria.....	100	1,183	149
Tuberculosis.....	1,220	9,574	631
Meningitis.....	2,137	3,859	4,081
Other diseases.....	3,768	34,881	15,587
Total	49,412	227,094	112,656

THE TRIUMPHS OF SURGERY

The modern surgeon undertakes to do almost anything in the line of anatomical carpentry, cabinet-making, and plumbing, as regards the human machine. Surgeons operate on joints without hesitation; they go into the chest cavity and operate upon heart and lungs; they work skilfully upon the delicate structure of the brain—in fact there is only about one triumph left for surgery to master, and that is the transplanting of vital organs; that is—the ability to take a kidney,

for instance, out of some unfortunate individual who has been killed by an accident, and put it into the body of a man who has been living too swiftly—who has Bright's disease. While this has been done only in exceptional cases in human beings (a few cases in which the sex glands have been temporarily transplanted) it has been done successfully in the case of lower animals. Cat's kidneys and sheep's kidneys have been put into cold storage and later put into the body of a dog, and the dog has lived.

This probability of transplanting vital organs suggests a strange possible situation in future times, in which the well-to-do citizen with a crippled kidney may seek to take out a mortgage on the kidney of some less prosperous fellow, in case he of the good kidney should suddenly shuffle off from some accident, whereupon he of the bad kidney would hie himself to a hospital—go to sleep for an hour—and come out with a pair of kidneys almost as good as new.

We tell such stories as these in a jocular spirit at the present time, but they are not beyond the pale of possibility in the not far distant future. Science is achieving many things once thought impossible.

FAILURES OF PREVENTIVE MEDICINE

While it is both encouraging and refreshing to record and recount the developments of modern sanitary science and the achievements of our more recent efforts along the lines of preventive medicine; nevertheless, it is more fitting just now, and will be more productive of increased efforts looking toward health improvement and race betterment, if we will frankly and honestly sit down together and face the facts—sincerely recognize wherein we are failing to stem the tide of disease and death.

We have already frankly admitted that among the germ diseases, we have failed almost completely in our efforts to

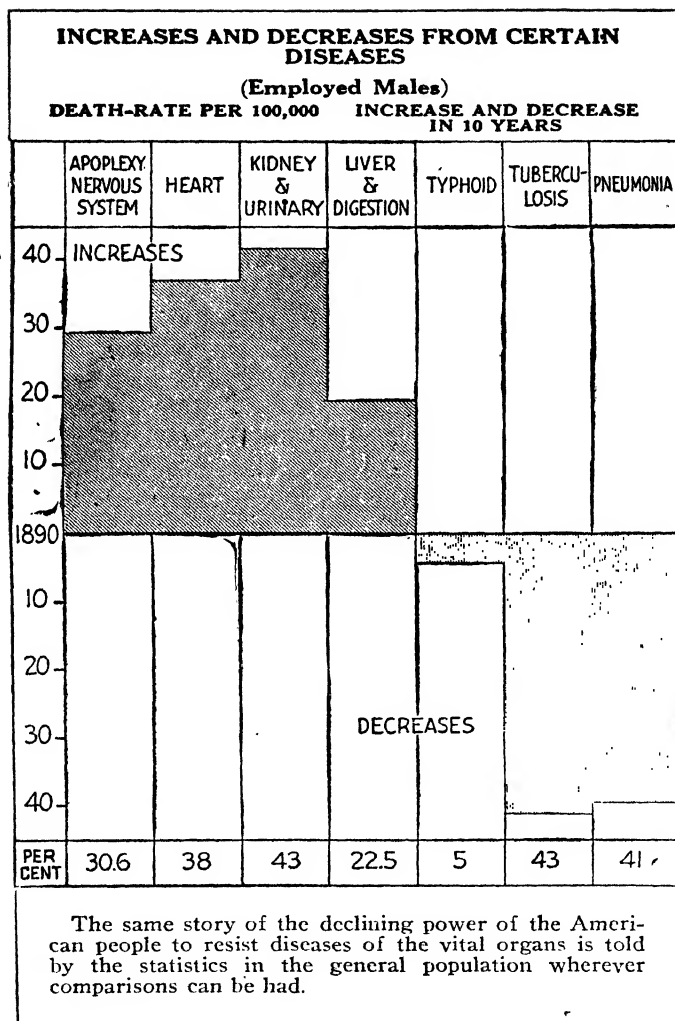


Fig. 5. Graphic illustrating the increased and the decreased death-rates of certain common diseases

understand and control both influenza and pneumonia, while at the same time we are making an equally sad failure of our methods of controlling venereal disorders, although we are fully cognizant of their causes and know how to prevent, suppress, and control them; but, as has been intimated, these diseases, comprising the "great black plague" will be more fully considered in a later chapter.

- Men of science and medicine have not only failed to improve the situation and lessen the death-rate from the so-called "habit disorders" or "old-age" diseases, but these diseases are actually increasing by leaps and bounds—in the very presence of our splendid achievements in the other domains of preventive medicine. Kidney diseases, heart disorders, diseases of the blood vessels (arteriosclerosis) with their consequent afflictions of apoplexy and paralysis have increased to an alarming degree during the last generation.

These commonly called "degenerative disorders" are all quite fully understood, as regards their causation, but since they are not any of them directly germ-caused diseases, the great advances of sanitary science have not in any way touched upon, or led in the least to improvement, as regards their prevalence and the enormous premature death-rate resulting therefrom. This phase of the discussion will also be more fully dealt with in subsequent chapters, and is enumerated here merely to complete the picture of those diseases which comprise the great failure of modern preventive medicine, owing to the fact that it has overemphasized sanitary science and failed to promote the cause of personal hygiene in a corresponding degree. (See Fig. 5.)

While we are, apparently, increasing the average length of life, and have almost accomplished the overthrow of the "filth diseases," we are permitting the civilized nations to go right along committing suicide on the instalment plan

through our failure to check the increase of these numerous "degenerative diseases" — the habit-caused disorders.

Very few insurance companies will now write a policy without knowing the applicant's blood-pressure. While low blood-pressure is of serious concern in many forms of heart trouble, nervous exhaustion, etc., nevertheless, the thing that attracts most attention in the average apparently healthy individual is the frequent prevalence of high blood-pressure. High blood-pressure is largely a matter of personal habits of living, thinking, working, resting, etc., and is only indirectly connected with microbic disorders.

From whatever causes due, various liver, digestive, and intestinal disorders are certainly not on the decrease, and according to available statistics many of these diseases seem to be definitely on the increase; not to mention such constitutional and systemic ailments as diabetes, which is also increasing — and increasing at an alarming pace.

THE HEALTH STRUGGLE OF THE FUTURE

The future health propaganda, while perhaps not dealing any less with sanitary science and public health measures than in the past, must pay more attention to *personal hygiene*. The rôle of inheritance in race improvement must receive more consideration. We must also take up such problems as the cause and cure of cancer. As will be shown more fully presently, cancer is a standing menace which challenges the entire medical profession and the scientific world, to discover its cause and develop methods of combat and cure.

Even such a commonplace problem as acute and chronic colds remains to be solved. We have made astonishingly slow progress in the development of methods to prevent, or alleviate, this ordinary, everyday harassment.

The proper place to begin this new health propaganda of

hygiene is in the public schools; not only in instructing the children, but in a brand-new teaching of physiology, hygiene, and eugenics, which shall begin in the early grades and follow the pupil throughout his educational career—to the finish of high school—and then into college. In this way the children can be taught the importance of both periodic dental and medical examinations, and will be able to carry this hygienic and eugenic teaching home, with a view of also affording some little help to the passing generation. *Personal hygiene and improved heredity is the keynote to the health teaching of the coming generation, and all our past achievements will not serve to stay the tide of increasing disease or to bring about an improvement in the death-rate from these "habit disorders," until we, as a nation, have passed through the experience and enjoy the benefits of a real hygienic and eugenic revival.*

TOKENS OF THE DAWN

Having, in this chapter, briefly portrayed the triumphs of modern medical and sanitary science, and having also frankly pointed out some of our humiliating failures to improve human health and lessen the death-rate from certain groups of physical disorders, it may not be amiss, in ending the chapter, briefly to survey some of the encouraging omens, to point out the tokens of the dawning of a new era—of a better day—which promises to correct the mistakes of the past and to fulfill, at least to some degree, our high hopes of the future. These indications of the awakening of the health consciousness of the American people are shown by the recent organization of numerous societies devoted to the study of various problems and diseases, such as the societies for the study and prevention of cancer, tuberculosis, venereal diseases, feeble-mindedness, etc. Still further evidence of this awakening along health lines is presented by our many activi-

ties directed toward enlightening the public regarding health and hygiene among which may be mentioned the following:

1. *Increased efficiency* — in public health administration, including the agitation for better registration of births and deaths. The increasing efficiency of the health departments of towns, cities, and states: Improved industrial health movements — industrial health insurance, etc.

2. *Health literature* — newspapers and magazines, not to mention the great number of books for the layman, good books too, which have appeared and are now appearing. Almost every paper of any consequence in this country has a regular health department, as a rule, supervised by a competent medical authority.

3. *Industrial medical supervision* — factories, manufacturing establishments, not only the large ones but even some of the smaller ones, have their institutional physicians and a more or less well-regulated system of supervising the health and efficiency of their employees.

4. *Insurance supervision*.— A few insurance companies are trying to provide annual supervision for their policyholders. I sometimes think that the health movement — like the temperance cause — will achieve no great success until it gets on a practical commercial basis. The insurance companies can save money by keeping their policyholders alive, and so they are therefore doing a great deal to foster and father this new movement of preventive medicine.

5. *Infant welfare*.— One of the great causes of lessened mortality, and of apparent increase in the average length of life, as has already been noted, is the great improvement in infant care — in the prevention of the diseases of the earlier years of the child's life. Pure milk stations, mother's clinics, infant welfare movement, the whole nation-wide propaganda for saving the babies, has produced definite results, even though the eugenist may question these results.

6. *School inspection.*—The improvement and extension of our medical inspection of schools, with the general improvement of school hygiene, whether in the matter of exercise, athletics, and free, or penny lunches, have all contributed something to maintaining the resistance of our youth against disease.

7. *Simple living.*—There is a growing popularity of what might be called the simple life or the “back-to-nature” movement. The vast majority of intelligent people of the younger generation ventilate their bedrooms. The old-fashioned dark, damp, clammy, spare bedroom is passing out of existence. Personal hygiene in all classes has improved 100 per cent in the past ten years. There is vast improvement in those phases of sanitation and hygiene, even if our dress is not altogether what it should be.

8. *Improved hygienic teaching.*—The educational institutions of the land, colleges and high schools, are giving more attention to hygiene. The mania for outdoor living has been augmented by the automobile. Outdoor athletics are still popular, and physical culture has become almost a fad with some enthusiasts. Associated with this revival in outdoor living, are to be found those who advocate the movement of “back to the land,” and who are advocating the suburban method of living for some of our city dwellers. The tendency of the American citizen to breathe fresh air, and to work and sleep in the open as much as possible, has become almost characteristic of our citizenry.

9. *Moral advancement.*—The sex educational propaganda, together with the movement which has declared war on venereal diseases, is a hopeful sign for the earlier years of the twentieth century. The anti-race-suicide propaganda, and the mutterings against the professional abortionist, all point to a further awakening of our health and eugenic consciousness which promises good for the near future.

10. *Improved dietetic habits.*—The pure food legislation, together with a more general dissemination of dietetic knowledge, has been a great help in the last few years. The United States Food Administration, during the war, did a tremendous amount of good by its dissemination of a better understanding of foodstuffs and dietetics in general. The average American of this generation knows more about foods than did his parents and grandparents.

11. *Supervision by the family physician.*—A great many people are forming the habit of going to their doctors once or twice a year just like they do to their dentists, to be looked over; and although in many cases this work may not be as thorough as might be desired, yet it is of great value—even as in the case of those laboratories which are examining the urine once a year. These superficial examinations serve a valuable purpose, although we have seen many patients with blood-pressure over 200 who supposed they were in fine condition because these periodical urine analyses had been for a long time showing up apparently normal. In this connection repeated blood-pressure observations are far more important in the early detection of degenerative disorders than are these frequent examinations of the urine.

12. *Annual health supervision.*—Institutions and groups of physicians are now, in different cities, associating themselves for the purpose of giving annual health service. This service is probably going to work out on the same lines followed by the legal fraternity. You pay an annual retaining fee for the supervision of your own health or that of your family with a schedule of slight additions thereto arranged to become operative in case of acute or prolonged illness which cannot otherwise be prevented.

Strange that we show so much system in the management of our legal affairs and manifest such poor judgment in the management of our health problems. What business man

would think of managing his legal department on a plan of ringing up an attorney any time anything happened. Not at all. You retain good legal counsel by the year. You pay your lawyer for keeping you out of litigation, as well as to win your case for you when trouble does come. Some day you may pay your doctor to keep you out of disease—you may pay him by the year—and then, just as in the case of your attorney, if disease cannot be avoided, you will then pay him some additional fee for this special service when rendered.

13. *Modern health audit organizations.*—Perhaps the most recent development in the conservation of health, is the organization in the larger cities of semi-philanthropic, or self-supporting institutions for promulgating and practicing the idea of the annual health audit. The bringing into existence of these organizations with their unusual facilities, designed for the thoroughgoing investigation of well people, marks a new era in the cause of preventive medicine. Heretofore thorough research examinations embracing the entire body and its many special organs, could only be had by going to some large hospital or sanitarium, or by the patronage of a large number of specialists which was both inconvenient and highly expensive. It is strange indeed that we have been so slow to recognize these needs and properly provide for them, but the demand which has recently sprung up as the result of the education of the public along these lines, will soon be met by proper organization on the part of the medical profession.

14. *Eugenic investigations.*—Last, but not least, among the encouraging signs of the times pointing toward race betterment, should be mentioned the great advancement in eugenics during the last dozen years. The science of heredity has made wonderful progress since the dawn of the twentieth century. The laws of human inheritance in relation to “race decadence” have been discovered and developed enormously

during the last decade. Heredity promises to rival hygiene in this work of race improvement, and in the future, eugenics must find a place in all our plans to combat human disease and race degeneracy.

SUMMARY OF THE CHAPTER

1. The science of sanitation goes back to the dawn of history — back to Egypt, Greece, and Rome.
2. The ancient Hebrews constructed elaborate sanitary works and provided a pure water supply for Jerusalem.
3. Hippocrates advocated boiling and filtering all drinking water.
4. Almost a thousand years before Christ, Athens had a water system and Rome a sewer system.
5. The dawn of modern medicine and sanitation dates from the discovery of the microscope and the subsequent birth and development of the science of bacteriology.
6. Present-day preventive medicine is devoted to discovering the causes of disease; to educating the public regarding sanitation; and to scientific efforts to prolong life.
7. In the past, our health efforts have been devoted to mastering the microbe — in the future — we must pay more attention to personal hygiene.
8. Typhoid fever is a "filth disease" which sanitary science and vaccination is slowly driving — in common with numerous other microbic diseases — from the face of the earth.
9. Even today we have a typhoid fever death-rate that is twice that of Great Britain. Chicago has a typhoid death-rate of only one person per 100,000.
10. The American farmer has yet to learn the rôle of privy vaults, open wells, and flies in the cause and spread of typhoid.
11. In olden times the plagues used to weed out the weak and sickly, and thus served — through the operation of the law of natural selection — to keep the race more vigorous.
12. Today, science protects the weak and feeble — keeps them alive to reproduce large numbers of their inferior kind to curse future generations.

13. The hygienic care of the present generation sometimes seems counter-wise to the eugenic protection of the strength and stamina of future generations.

14. Asiatic cholera, black death, yellow fever, malaria, diphtheria, and smallpox have been practically wiped out as devastating world plagues.

15. Of all the terrible world plagues only tuberculosis, influenza, and venereal diseases fail of having been brought under more or less complete control.

16. In military medicine great advances have been made. In almost two years with over 2,000,000 soldiers, we lost only 5 from smallpox and only 213 from typhoid.

17. The greatest death-rate in recent years from the old plagues has occurred in connection with the unmastered influenza epidemics and the associated pneumonia.

18. If the typhoid death-rate of the Spanish-American War had obtained during the recent World War, we should have lost over 51,000 soldiers from that cause alone.

19. The greatest triumphs of curative medicine have been along surgical lines. Today the surgeon does about everything short of transplanting the vital organs.

20. The mistakes of preventive medicine are shown in its failure to lower the death-rate for the "habit diseases" — heart failure, kidney and arterial disorders.

21. The health struggle of the future must be more devoted to the mastery of these so-called "degenerative disorders" by which so many men and women commit suicide.

22. Personal hygiene must become the keynote of the health teaching of the coming generation.

23. We observe the tokens of the dawn of better times in the general health awakening of the American people; in the rapid spread of hygienic information; in the increased medical supervision of school children; and the rapid advancement of various methods of disease-control.

24. The one thing needful today is the further spread of the practice of having an annual medical examination — just as the dentist is consulted periodically.

25. Among those new developments which promise help for the cause of race improvement is the new science of eugenics.

CHAPTER VI

THE CANCER PROBLEM

CANCER is indeed a plague. So far this dread disease has baffled science. The cause has not been discovered — neither has the remedy — except as regards a resort to surgical removal at such time as permits the complete extirpation of all malignant growth and involved tissue.

IS CANCER INCREASING?

Cancer appears to be on the increase in every civilized country. The death-rate in the United States registration area increased from 63 per 100,000 population in 1900 to 81.6 in 1917. The rise in the recorded cancer death-rate is, no doubt, partly to be attributed to improved medical diagnosis and better statistical methods, but these factors seem insufficient to account for the widespread increase reported from practically all civilized countries, or for certain significant variations when the rates are studied for particular organs by age and sex and by different areas and countries. On the whole cancer is probably increasing, though not equally with all forms of the disease, some of which even show a slight decrease.

Cancer causes one out of every 10 deaths after the age of 40 in this country. From the reports of the United States Census Bureau it also appears that cancer causes one out of every 8 deaths among women of 40 and over, and about one in every 13 deaths among men of the same age. Among people over 40 cancer is much more frequent than tuberculosis or pneumonia.

Ninety-five per cent of all deaths from cancer occur after 35, but even including all ages and both sexes cancer stands among the half-dozen chief causes of death such as pneumonia, heart disease, tuberculosis, and diseases of the kidney, while far exceeding in its annual toll many common diseases like typhoid fever, diphtheria, scarlet fever, measles, etc. It is estimated that by 1922 the cancer mortality for the whole country will be 100,000 or over.

Cancer has apparently increased 300 per cent in Boston in thirty years.

In 1917 in the United States registration area tuberculosis claimed 110,285 deaths; pneumonia, 112,821 (in a normal year not affected by the influenza epidemic); heart disease, 115,337; disease of the kidneys, 80,912; cancer about 90,000 — thus ranking among the leading causes of death.

THE PREVALENCE OF CANCER

Cancer is almost exclusively a disease of adult life. Largely because of neglect and ignorance, 9 cases out of 10 are now fatal. Yet, if proper precautions and treatment were observed in the early stages it is probable that over half the 100,000 yearly deaths which this disease now causes in the United States could be prevented.

Cancer occurs in a variety of forms affecting practically every organ or part of the body. The United States census report shows that cancers of the stomach and cancers of the liver together account for 35,000 out of 90,000 annual deaths from this disease. Cancer of the female generative organs causes 13,000 deaths per annum, cancer of the breast about 8,500, cancers of the mouth and tongue about 3,500, cancers of the intestines and rectum 12,000, cancers of the skin about 3,500, and cancers of all other organs and parts about 14,500. Probably 60 per cent of cancers of the rectum are first regarded as "piles." Insist on a thorough examina-

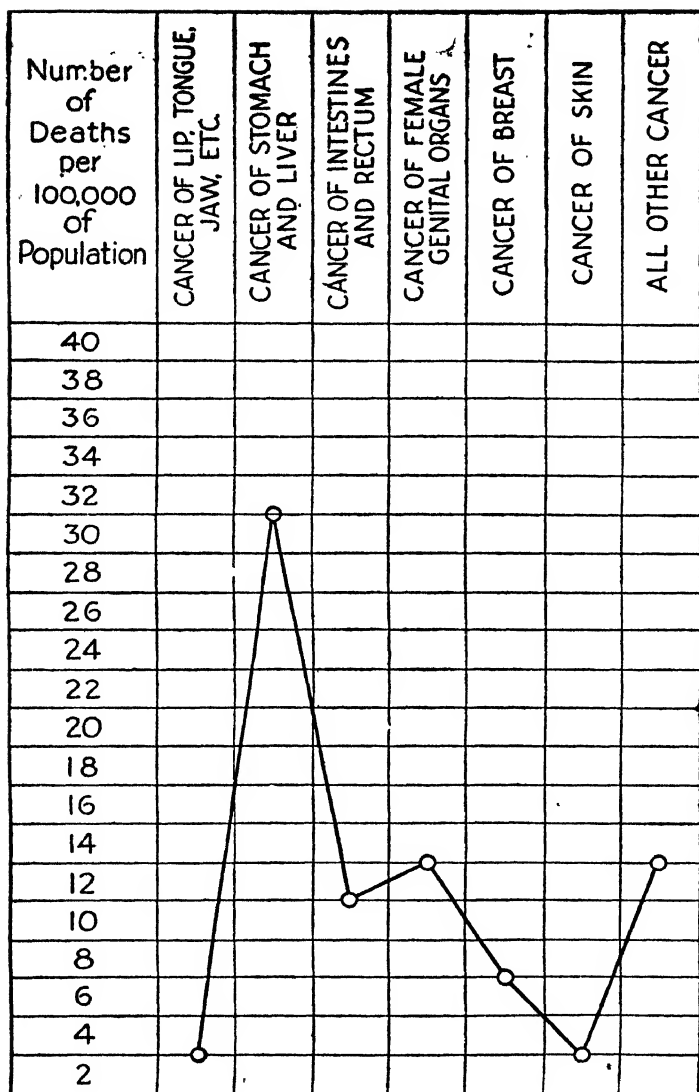


Fig. 6. Showing deaths from different forms of cancer

tion of all rectal troubles and have all chronic and troublesome cases of "piles" (hemorrhoids) removed by surgical operation before they degenerate into cancer. (See Fig. 6.)

ESTIMATED ANNUAL MORTALITY FROM CANCER
IN CONTINENTAL UNITED STATES

Organs or Parts	Males	Females	Total
Buccal cavity	2,725	570	3,295
Stomach and liver.....	15,787	15,056	30,843
•Peritoneum, intestines, rectum.....	4,544	6,027	10,571
Female generative organs.....	.....	11,965	11,965
Female breast .....	.....	7,771	7,771
Skin	1,982	1,098	3,080
Others	7,838	4,637	12,475
All forms	32,876	47,124	80,000

The recorded mortality for cancer in this, as in other countries of the world, is gradually on the increase. The annual increase in the cancer death-rate is approximately 2.5 per cent. The recorded cancer death-rate has practically doubled during the last forty years.

CANCER IN CHICAGO

Cancer deaths are increasing in Chicago, as indicated by the mortality figures (given below) for the five-year period, 1914 to 1918, inclusive.

1914	2,091
1915	2,078
1916	2,254
1917	2,256
1918	2,407
Total	11,086

The above table shows that while deaths from cancer are increasing in Chicago, yet the emphatic rise in the death-rate from this cause is shown in the figures for the year 1918, as

compared with those of the previous year. For the period named, 1914 to 1918 inclusive, there were 16,711 deaths in Chicago from pulmonary tuberculosis, the disease with which cancer as a tolltaker of human lives has already been compared. In other words, the "Great White Plague," so called, caused only 5,685 more deaths in five years than were chargeable to cancer.

PREVENTING CANCER DEATHS

But despite the alarming increase in deaths from cancer, there is this message of hope sent out by the medical and surgical experts who have studied the disease in all its forms. This message is to the effect that cancer is a curable disease and that fully 60 per cent of the 90,000 yearly deaths in this country are needless and preventable.

Medical men know a great deal more about cancer today than was known twenty years ago. For example, it is known that cancer is at first a local disease and not a constitutional, or blood disease. It begins in one spot as a small growth which in the early stages can be removed. And if this is done promptly by a competent surgeon, every trace of the disease can often be eradicated and a complete cure effected. But if neglected, cancer spreads rapidly and, like a fire not taken in time, soon gets beyond control.

So it is evident that early diagnosis and treatment are the important things in the prevention of cancer and in the reduction of deaths from this cause. This means that in all cases of suspected cancer, medical advice should be sought at once. Delay is dangerous. A sore on any part of the body, malignant in character, and which refuses to heal in a normal manner, should not be neglected. Don't try advertised cancer cures. Consult your physician and be guided by his advice.

Cancer is not contagious. But ordinary care and cleanli-

ness should be observed in the care of cancer patients and all dressing cloths burned immediately after removal.

In most cases taken in the early stages the operation of removal is of a minor character and attended by no danger.

Every "cancer cure" advertisement is a swindle, and the use of valueless medicines and preparations means waste of money and time. Testimonials of advertising "specialties" and "institutes" are either fabrications or are based, in all probability, on the removal of conditions which were not cancer at all.

WHAT WOMEN SHOULD KNOW ABOUT CANCER

Between the ages of 35 and 45 three times as many American women as men die of cancer, between the ages of 45 and 55 twice as many. Generally speaking, the excessive mortality among women is due to cancer of the breast and of the generative organs. These forms of the disease, like others, are curable by competent treatment in the early stages. But the warning signs must be learned and heeded.

Women are more subject to cancer than men owing to the fact the special organs of women are especially susceptible to this disease. One-eighth of all female deaths above the age of 40 are due to cancer, while only one death in every 14 of men of the same age is due to this cause. If we exclude deaths from cancer of the breast and uterus the relative frequency of all other forms is about the same in the two sexes. The civilized, and particularly the white races, are more liable to cancer in general than native races like the North American Indians or the Orientals, but cancer of the uterus seems to be more common among Negro women in the United States than among the white women. Cancer of the breast and ovaries is more frequent among the unmarried, while by contrast cancer of the uterus is more common among married women.

WHAT EVERYONE SHOULD KNOW ABOUT CANCER

The following essential facts about cancer should be familiar to every intelligent adult:

1. Cancer begins as a small local growth which often can be safely and easily removed in the early stages by competent surgical treatment; or, in certain favorable and superficial cases, by radium or X-ray.

2. The beginning of cancer is usually painless; for this reason its onset is doubly insidious and other danger signals must be looked for and heeded in time.

3. Cancer is not a constitutional or blood disease and there should be no thought of disgrace or direct hereditary taint associated with it.

4. Cancer is not a contagious or communicable disease and there is no danger from living in the same house or from personal contact with a cancer patient.

5. In any ordinary sense, cancer is not inherited. Some authorities believe that there may be inheritance of a certain tendency to the disease, but even that is not clearly established. The disease is so frequent that by the very law of chance many cases will occur in some families. Life insurance companies do not regard cancer in the family as a reason for rejecting applicants or increasing premiums.

6. A persistent lump in the breast, or continued abnormal discharge or bleeding should take a woman to her doctor forthwith. The increased flowing which frequently occurs at change of life, is always suspicious, as is the return of flowing after it has stopped. Any form of intermenstrual hemorrhage should be regarded with suspicion.

7. Sores, cracks, lacerations, lumps, and ulcers which do not heal, and warts, moles, or birthmarks which change in color or appearance are danger signals which demand competent medical investigation and proper treatment.

8. Persistent indigestion in middle life with loss of weight and change of color, may mean internal cancer. Don't wait until blood or "coffee grounds" are vomited.

9. Continued irritation in some form rather than a sudden blow, is the usual cause of cancer.

10. A doctor who says "Wait and see," assumes a serious responsibility. No competent doctor will treat a suspicious symptom without making a thorough examination.

11. Because "cancer pastes" or other remedies are reputed to have cured certain superficial cancers of the skin — those with real and deep-seated cancer are led to trust these "cures" — and they always fail in the presence of real cancer.

12. Don't make a mistake in treating sores about the lips, mouth, or tongue. Picking and irritating such sores, cracks, ulcerations, etc., or treating these skin conditions by home remedies, pastes, poultices, caustics, etc., is playing with fire. Warty growths, moles or other birthmarks, especially those subject to constant irritation, should be attended to immediately. Avoidance of chronic irritation and removal of just such seemingly insignificant danger spots may prevent cancer.

13. Don't be misled by the frequent newspaper or magazine announcements that somebody has discovered a cancer cure. When the real cure is discovered it will probably be disclosed through the scientific channels which have been concerned in working out the many problems connected with this baffling malady.

14. Don't depend upon X-rays or radium as a cure in the early stages — resort to immediate operation if the prospects are favorable. Radium and X-rays are valuable means of treatment when surgery cannot be employed, or in certain other cases as an aid to surgery. In inoperable cases they may be used to great advantage.

SUMMARY OF THE CHAPTER

1. Cancer has baffled medical science and appears to be increasing. In less than twenty years the death-rate has risen from 63 to 81 per 100,000.

2. Cancer causes one out of every 10 deaths after the age of 40 in this country; one out of every 8 in women over 40.

3. We lose almost 100,000 people each year from cancer in all its many forms.

4. Cancer seems to have increased 300 per cent in Boston in thirty years.

5. Cancer ranks among the six leading causes of death. Ninety-five per cent of deaths occur in those over 35 years of age.

6. In cases of cancer 9 out of 10 are fatal; yet, if proper steps were taken early, one-half of the cancer deaths (at least) could be prevented.

7. Of cancer deaths about 35 per cent are from cancer of the stomach and liver; 13 per cent in the female generative organs; 8.5 per cent in the breast; 3.5, mouth; 12 per cent of the bowels, etc.

8. Sixty per cent of the cancers of the rectum start out as hemorrhoids — common piles.

9. The annual increase is about 2.5 per cent. The recorded cancer death-rate has doubled in the last forty years.

10. In Chicago, the cancer death-rate is rapidly catching up with the tuberculosis death-rate.

11. From ages 35 to 55 cancer is two or three times more dangerous to women than to men. Women should take special precautions.

12. The vital thing in cancer is an early diagnosis and prompt medical measures — early and radical operation.

13. Cancer is at first a local disease — it is not constitutional. It is not contagious, and is not inherited — though it does appear to “run in families.”

14. Cancer cures are frauds and swindles, although “pastes” may cure supposed superficial cancer of the skin. Radium and X-ray are valuable — and they sometimes cure.

15. Everybody should understand that cancer begins as a small local growth — usually painless — and tends to in-

crease. Later it ulcerates, bleeds, etc., but should have attention long before this stage.

16. Lumps in the breast, or chronic "piles" suggest cancer of the breast or of the rectum.

17. Indigestion, stomach trouble, and loss of weight in middle life is suggestive of cancer of the stomach or other internal organs.

18. Look out for moles, birthmarks, or scars which change color, get angry, or bleed.

19. Don't be deceived by the newspaper announcements of the discovery of cancer cures; and don't depend too much on X-ray or radium. Seek an early operation.

20. In the case of a woman — regard with suspicion any hemorrhagic discharge which may appear between the regular menstrual periods. Seek early surgical advice.

CHAPTER VII

THE WHITE PLAGUE

WHILE we know the microbic cause of tuberculosis and also are in possession of the technique of cure — still the death-rate of the Great White Plague only slowly decreases. Much work remains to be done before this malady is finally and completely vanquished. But, since the public is more or less conversant with the battle which is being waged against this disorder, we deem it advisable to deal only with tuberculosis in that brief manner which will serve to call attention to the part it plays in the country's death-rate and to emphasize the need of further efforts being directed towards its ultimate conquest.

WHAT IS TUBERCULOSIS?

Tuberculosis is a disease caused by a microbe — the tubercle bacilli — and, under favorable conditions, may attack most any part of the human body; although it is most commonly associated with the lungs. In general the disease and its manifestations are too well known to require extended description.

Contrary to a stubborn popular belief, not yet entirely overcome, tuberculosis is not an inherited disease. The daily expectoration of a consumptive may contain millions of germs, and the belief that the disease was inherited was due to the fact that tuberculous fathers and mothers infected their children.

Tuberculosis is a secret, insidious, invisible foe that creeps

upon its victims. It works silently, tightening its grip each day until they weaken and waste away.

The war of tuberculosis on mankind is more deadly than the wars of conflicting nations. Tuberculosis has caused far more widowhood and orphanhood than all the wars in which the United States has engaged, the great Civil War included.

THE HIDDEN ENEMY

Predisposing causes of tuberculosis in the environment are bad living and working conditions, especially impure air, darkness, dirt, and dust.

Predisposing causes of tuberculosis in the person are weakened physical condition, overwork, lack of proper food, alcoholism, dissipation, influenza, colds, pneumonia, measles, typhoid, pleurisy—in fact, any disease that materially weakens the system.

Men who work where there is considerable dust are peculiarly susceptible to tuberculosis. The metallic dust of printing offices and brass works, the mineral dust of quarries and potteries, the vegetable fiber dust of textile factories and paper mills, and the animal and mixed fiber dust of silk and carpet factories, all are dangerous because the dust injures the lungs and opens the way for the germ to find lodgement.

The commonest early symptoms of tuberculosis are a persistent cough or cold, continued hoarseness, loss of weight and appetite, a run-down, tired feeling, persistent pain in the chest, afternoon temperature, night sweats, spitting of blood, etc.

THE DEATH TOLL

The deaths from tuberculosis in the United States now average 150,000 a year. Every three minutes some man, woman, or child dies from its ravages—20 every hour, 480 every day. One-tenth of all the people who die in the United

States are victims of tuberculosis. Yet tuberculosis is a preventable and curable disease.

The most formidable obstacle in the campaign against tuberculosis is the undiscovered case, the person who has tuberculosis and doesn't know it. When the United States entered the World War the draft boards and the army doctors found more than 100,000 such cases among the young men who thought themselves physically fit for military service.

Of the 100,000,000 now living in this country, it is estimated that 8,000,000 to 10,000,000 are doomed to die of tuberculosis, unless the disease is further checked. The loss of life and treasure is appalling. It is, therefore, most encouraging that preventive measures based upon modern conceptions of the disease as a communicable infection are giving encouraging results.

There are at least 1,000,000 active cases of tuberculosis in the United States. No close estimate of the number of inactive cases can be made. The health demonstration at Framingham, Massachusetts, where a whole city put itself in the care of physicians in order to promote health and further scientific investigation, has revealed that there are 15 cases of tuberculosis for every death. This would indicate a total number of over 2,000,000 cases in the whole country, 1,000,000 of which are probably inactive.

Most of the victims are taken in the prime of life. One-third of all who die between the ages of 18 and 45 are killed by tuberculosis. The economic loss to the nation amounts to almost \$1,000,000,000 each year.

Among the 150,000 persons who are killed by tuberculosis in the United States every year are more than 12,000 children, under 5 years of age. Children are particularly susceptible to infection. More than 50 per cent of all children are infected before they are 10 years of age, and the percentage increases until at 15 years it reaches its maximum of

from 60 to 70 per cent, and by 21 practically everyone is more or less infected.

There are over 50,000 cases of tuberculosis in Illinois; over 25,000 in Chicago. In one block in New York there were 265 deaths in nine years. We lose one person every hour in Illinois alone from tuberculosis.

One-seventh of all deaths are caused by tuberculosis. One-fourth of all adult deaths are caused by tuberculosis; while at the same time one-fourth of all others show tuberculosis lesion, therefore — one-half of all adults have probably had tuberculosis in some form, sometime during their lives.

BOVINE TUBERCULOSIS

Notwithstanding all the discussion pro and con, it is undoubtedly true that man can and does contract tuberculosis from cattle. If only 1 per cent of the deaths from tuberculosis in the United States were caused by bovine tubercle bacilli, it would mean over 1,600 deaths yearly. It is now estimated that perhaps 7 per cent of the tuberculosis in man is of bovine or animal origin.

Woodward voices the prevailing opinion when he maintains that the more deeply we go into the subject, the bovine side of the question comes to take a larger and larger place, especially in connection with surgical and abdominal tuberculosis, not only in the child but even in the adult.

From the standpoint of our present knowledge we must consider that practically every case of bovine tuberculosis in man is ingestion tuberculosis, contracted from milk, or fresh milk products. How the tubercle bacilli get into milk and frequency with which it is infected are disputed points.

HOW TO WIN THE BATTLE

The anti-tuberculosis societies — for whose benefit we buy the Christmas seals — have done much to crystallize the fight

on the Great White Plague and to organize, stimulate, and enlighten public opinion, and have sent broadcast to the individual sufferer and the endangered members of the family much valuable instruction about using the "ounce of prevention" which is so much better than the best "cure" for any disease. The following practical suggestions are to be found among those furnished for the purpose of pointing out to the public how to prevent the spread of the tubercular plague.

1. By teaching the consumptive to destroy his sputum, so as not to infect his family or neighbors. Spitting spreads disease, particularly tuberculosis.

2. By teaching all people not to sleep, live, or work in dark or badly ventilated rooms. Sleeping porches are great promoters and preservers of health, but if they are beyond one's means one should at least keep the window wide open at night. (See Fig. 7.)

3. By discovering the disease in its early stages and curing the patient, thus removing a source of infection to others. This is particularly the work of the organizations and individual physicians.

4. By educating the community as to the nature of the disease, that it is communicable, preventable, and curable.

5. By educating people to keep their bodies in such physical condition as to enable them to resist the germs of tuberculosis.

6. By advocating fresh air, outside life, sunshine, rest, no overstrain, whether at work or in exercise, wholesome food, and temperate habits.

7. By safeguarding the health of children, giving them clean places to play in, and taking special care to keep young people away from sources of infection.

8. By providing institutions, nurses, and dispensaries for the care, cure, and restoration to a safe and sane life of those who are afflicted with the disease.



Fig. 7. Shaded in the sun.

promoters and preservers of health

9. By insisting on periodic physical examinations for everyone, well or sick. These examinations should be taken at least once a year; every six months would be better, and every three months better still.

10. Fifteen years ago the death-rate from tuberculosis in the United States was 200.7 in each 100,000 of population. That meant a death loss of 200,000 a year. It has now come down to 150,000 a year — hard work may soon bring it down to 100,000 a year.

HEREDITY AND TUBERCULOSIS

When we say that tuberculosis is not hereditary, we mean that it is not directly inheritable as a disease. The tendency — the susceptibility — to tuberculosis certainly “runs in families;” it is even more prevalent in certain races. It is a well-known fact that the Irish race is much more susceptible to tuberculosis than is, for instance, the Jewish race.

The decline in the death-rate, from tuberculosis, in the United States, is thought by some statisticians to be due to the fact that the American stock which was more vulnerable to tuberculosis is being wiped out, and that the remaining population is more resistant to the Great White Plague. And the eugenic investigations of the last decade go a long way toward sustaining this theory of family and racial predisposition to tubercular infections.

If it is a fact that certain individuals — even races — are born with a predetermination toward tuberculosis, then we must look to the cause of eugenics and the science of heredity for further help along the lines of preventing and combating this ravaging malady. While we should not slacken our efforts along the lines of hygienic warfare against consumption and other forms of tuberculosis, nevertheless the author believes that much additional assistance might be gained by a

sober consideration of the facts and theories which have been developed by the biologists and other investigators in the field of genetics and eugenics.

We come more and more to recognize that the cause of "race betterment" is not to be advanced entirely by the sciences of medicine and sanitation. We cannot further overlook the fact that much of our race decadence is directly due to defective germ-plasm and that a more complete understanding and more effective application of the laws of inheritance will contribute much more to the successful treatment and prevention of a great deal of our race decadence and degeneracy.

SUMMARY OF THE CHAPTER

1. Tuberculosis is a microbic disease which may, under favorable conditions, attack most any part of the body, although it is commonly found in the lungs.

2. Tuberculosis is a secret and insidious foe causing more deaths than all the wars of mankind; but it is not inherited.

3. The predisposing causes are bad air, darkness, dust, overwork, undernourishment, alcoholism, dissipation, and all lung disorders such as colds, pneumonia, influenza, measles, etc.

4. The earliest symptoms of tuberculosis are: persistent cough or cold, hoarseness, loss of weight, appetite, and spirits, fatigue, pain in the chest, afternoon fever, and night sweats.

5. The tuberculosis death-rate in this country is 150,000 a year — one every three minutes, 20 an hour, 480 a day. It represents one-tenth of all our deaths.

6. In the recent military draft the examining surgeons found more than 100,000 unknown cases among our young men.

7. Of the American people living today 10,000,000 are doomed to die of this plague if it is not checked.

8. There are not less than 1,000,000 active cases in this country all the time. One-third of all who die between 18 and 45 years perish from this disease.

9. More than 50 per cent of all children are infected before they are 10 years old; at 15 years about 70 per cent; at 21 years practically everyone is more or less infected.

10. There are at least 50,000 cases in Illinois; 25,000 cases in Chicago. One person dies every hour in Illinois from tuberculosis.

11. One-fourth of all adult deaths are caused by tuberculosis. One-fourth of all the others show traces of the disease; therefore, one-half of all adults probably have had the disease in some form.

12. Man can and probably does contract tuberculosis from cattle. Some think that 7 per cent of this disease in man is of animal origin — received largely through milk.

13. The anti-tuberculosis societies have performed an invaluable service in public enlightenment and individual instruction of the victims of this dread disease.

14. The instructions furnished for both preventing and curing the disorder are precise and concise, and never fail to produce results when faithfully and efficiently applied.

15. Hereditary predisposition is a large factor in the causation of tuberculosis in both the individual and in certain races. Tuberculosis does "run in families."

CHAPTER VIII

THE GREAT BLACK PLAGUE

WE HAVE just been considering tuberculosis. We consecrate a Sunday each year in the churches, to the Great White Plague; and as a result of this agitation, though we have not yet begun to realize our full dividends, nevertheless we are seeing an actual decrease in the mortality from tuberculosis. But now we come to the consideration of a group of diseases which, while they are caused by microbic or parasitic organisms, are not on the decrease. They are the unmentionable diseases of social transgression — gonorrhea and syphilis — and they constitute the Great Black Plague. These two diseases have scourged society for centuries in the presence of a conspiracy of silence on the part of the public, the church, and the medical profession.

STORY OF SYPHILIS

Syphilis was undoubtedly discovered by Columbus along with America. His sailors carried it back to Europe and in a short while it spread itself over the entire civilized world. It represents, along with tobacco and Indian corn, America's contribution to latter-day civilization.

Syphilis is a good illustration of the fact that it is much more difficult to control a disease transmitted directly from one human being to another than it is a disease transmitted by an intermediate host, or one in which the infective principle is transferred through our environment, as is the case in malaria. We have a certain amount of control over our surroundings, and we have dominion over the lower animals, but

the control of men and women requires the consent of the governed.

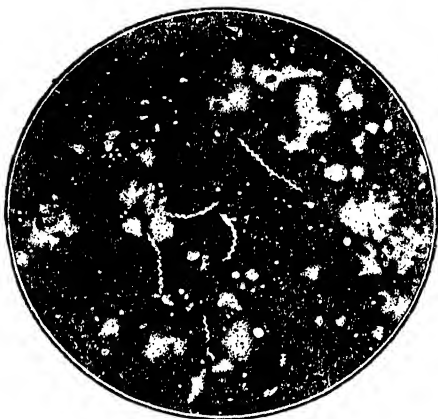
One attack of syphilis is supposed to confer immunity, in that reinfections do not produce another chancre. That is, the virus cannot be inoculated upon a person who has or has had the disease, but reinfection can occur as a result of subsequent exposure.

Syphilis is usually contracted as a result of illicit sex relations, but may also be picked up from any infected article such as drinking cups, eating utensils, and by kissing, etc. Children may be born with syphilis—having contracted it congenitally. The best authorities are now about agreed that syphilis is not hereditary in the sense that insanity is said to be hereditary. The mother is supposed to have the disease in its contagious stage while carrying her offspring and in this way the child contracts the disease and is born with it. It is the case of a prenatal contagion; not one of bona fide heredity.

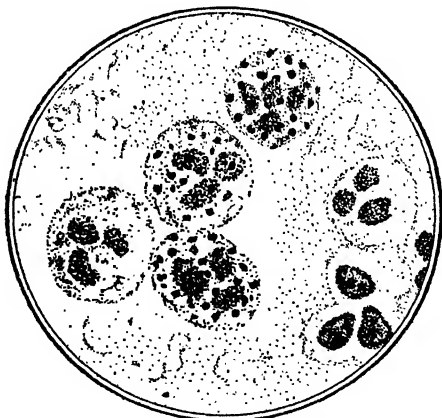
COURSE OF SYPHILIS

Syphilis is caused by a minute animal organism called *spirochaeta pallida* (see Fig. 8), and while this whole volume might be filled with even a brief résumé of the multitude of symptoms and manifestations of syphilis, the following summary by Stokes is right to the point:

Summing up briefly the main points to bear in mind about the course of syphilis—there is a time, at the very beginning of the disease, even after the first sore appears, when the condition is still at or near the place where it entered the body. At this time it can be permanently cured by quick recognition and thorough treatment. There are no fixed characteristics of the early stages of the disease, and it often escapes attention entirely or is regarded as a trifle. The symptoms that follow the spread of the disease over the body may be severe or mild, but they seldom endanger life, and again often escape notice, leaving the victim for some years a danger to other people from relapses about which he may know nothing



THE SPIROCHAETA PALLIDA - The Cause of Syphilis



THE GONOCOCCUS MICROBE - The Cause of Gonorrhea

Fig. 8. Organisms causing the Great Black Plague

whatever. Serious syphilis is the late syphilis which overtakes those whose earlier symptoms passed unrecognized or were insufficiently treated. Late syphilis of the skin and bones, disfiguring and horrible to look at, is less dangerous than the hidden syphilis of the blood vessels, the nerves, and the internal organs, which, under cover of a whole skin and apparent health, maims and destroys its victims. Locomotor ataxia and softening of the brain, early apoplexy, blindness and deafness, paralysis, chronic fatal kidney and liver disease, heart failure, hardening of the blood vessels early in life, with sudden or lingering death from any of these causes are among the ways in which syphilis destroys innocent and guilty alike. And yet, for all its destructive power, it is one of the easiest diseases to hold in check, and if intelligently treated at almost any but the last stages, can, in the great majority of cases, be kept from endangering life.

BLOOD TEST FOR SYPHILIS

(Wassermann Test)

Certain practical details about this test are of interest to everyone. Blood for it is usually drawn from a small vein in the arm. The discomfort is insignificant — no more than that of a sharp pin-prick. Blood is drawn in the same way for other kinds of blood tests, so that a needle-prick in the arm is not necessarily for a Wassermann test. There is no cutting, and no scar remains. The amount of blood drawn is so small that it does not weaken in the least. The test is done on the serum or fluid part of the blood, after the corpuscles are removed. It can also be done on the clear fluid taken from around the spinal cord, and this is necessary in certain syphilitic nervous diseases. There is nothing about the test that need make anybody hesitate in taking it, and it is safe to say that when properly done, the information that it gives is more than worth the trouble, especially to those who have at any time been exposed, even remotely, to the risk of infection. But the test must be well done in a large hospital or through a competent physician or specialist, and the result interpreted to the patient by the physician and not by the laboratory that does the test, or in the light of the pa-

tient's own half-knowledge of the matter. While the Wassermann test is not infallible, the author regards it as the most reliable single evidence of syphilis — not overlooking, of course, the actual manifestations of the disease — and we regard it as an authentic indication of the presence of the disease nine times out of ten, when the test shows positive in the hands of a competent technician.

TREATMENT OF SYPHILIS

Whenever one talks to a person who knows something of the advances in knowledge in the past few years about the treatment of syphilis, and goes into detail about mercury, the odds are two to one that he will be interrupted by the question, "But what about '606'?" Before talking about salvarsan, or "606," it is well to say here that this new drug, wonderful though it is, has in no sense done away with the use of mercury in the treatment of syphilis. "Mercury has as high a reputation and is as indispensable in the cure of syphilis today as it was two hundred years ago. It has as yet no substitutes." We appreciate every day, more and more, how thoroughly it can be depended on to do the work we expect of it. A drug known as potassium iodid is widely used in the treatment of syphilis, and especially of the late forms of the disease, such as gummas (internal tumors) and gummatous sores. It has a peculiar effect on gummatous tissue, causing it to melt away, so to speak, and greatly hastening the healing process. So remarkable is this effect that it gives the impression that iodids are really curing the syphilis itself. "It has been shown, however, that iodids have no effect upon the germs of syphilis, and therefore on the cause of the disease, although they can promote the healing of the sores in the late stages." For this reason mercury must always be used in connection with iodids if the disease itself is to be cured. It is occasionally difficult to get patients to understand this

after they have once taken "drops" as the medicine (iodids) is often called.

Most insurance companies refuse to accept untreated syphilitics at all. Some companies require extra premiums to compensate for the extra risks; a few companies will accept exceptionally favorable cases who have had a thorough course of treatment, and who have shown no symptoms for three to five years, but under these circumstances only special policies are contracted for which do not keep the applicant on the companies' books after 55 years of age.

To effect a practical cure of syphilis — that is, such a cure as will enable the patient to get married with reasonable assurance that he will not infect his wife and that his children will not be infected when they are born, and also to be reasonably certain that he will not be affected with locomotor ataxia and other late manifestations — in order to bring about such a probable cure — it is desirable that the patient should begin his treatment at the earliest possible moment and continue it uninterruptedly for from one to two years. Then, if the Wassermann tests are repeatedly negative and otherwise everything is satisfactory to the attending physician the patient may continue under observation for two or three years more — being subjected to repeated blood tests and submitting from time to time to any further treatment indicated by the results of these repeated Wassermann tests. We like to have patients give continuous negative Wassermann tests for at least two years before they get married. As a rule we do not permit a patient to marry much under five years from the beginning of the infection or treatment; although the thorough and early treatment of the infection will often make it reasonably safe to shorten up this waiting period somewhat.

Both the patient and the physician should play safe. Take no chances. The consequences of infecting an innocent wife and thus to result in either a syphilitic miscarriage or in

bringing into the world a deformed or defective child are altogether too terrible and serious to warrant any degree of trifling or careless guesswork.

GONORRHEA

Gonorrhea is an infection of any mucus membrane (usually the sexual tract) by the microbe known as the "gonococcus" germ. (See Fig. 8.) It is nearly always contracted during sex relations. The gonococcus sometimes invades the blood and produces a general septicemia, or blood poisoning, and death may occur from endocarditis — heart disease. Gonorrheal arthritis (rheumatism) is, in many respects, the most damaging, disabling, and serious of all the complications of this dreadful disease. It may even follow ophthalmia neonatorum — gonorrheal inflammation of the eyes of a newborn babe.

Sterility is one of the serious consequences of gonorrhea. This may be caused in the male through epididymitis (inflammation of the duct of the testicle), which is a very common complication; and in the female by salpingitis (inflammation of the Fallopian tubes), which closes or obstructs the Fallopian tube to the passage of the ovum. Stricture of the urethra in the male is a very frequent sequel and results, sometimes, in life-long trouble — not to mention its probable connection with premature prostatic troubles.

Gonorrhea, while usually cured without apparent loss of health, has always serious possibilities; it kills about one in 200; it impairs the sexual power and fertility of a much larger number; and as has been noted it often produces urethral strictures, which later may cause loss of life.

The persistence of gonorrhea in the deeper parts long after it is outwardly cured leads to the unsuspected communication of the disease to innocent and unsuspecting individuals with whom the infected person may cohabit. Much of the surgery

performed upon women has been rendered necessary by gonorrhea contracted from the husband. Should she while infected with this disease give birth to a child, the baby's eyes may be attacked (unless properly treated by the physician at the time of delivery), sometimes causing blindness.

Gonorrheal infections in children require special consideration. The frequency of such infection may be judged from the observations of Pollack who reports 187 cases treated in the Woman's Venereal Department of Johns Hopkins Hospital during one year. Pollack estimates that 800 to 1,000 children are infected each year in Baltimore, and that the same proportion probably holds good for other cities. The cause of the frequent infection among children is in part the abominable superstition that a person afflicted with syphilis or gonorrhea may get rid of it by infecting another — especially a virgin.

TREATMENT OF GONORRHEA

A gonorrheal infection is sometimes very difficult completely and permanently to cure. In most cases it is certainly far different from the popular impression that used to prevail among some of the laity that the contraction of this disease was no worse than catching a "bad cold." If the infection is taken promptly, and is treated faithfully and heroically, it may pass through its worst stages in a few weeks or at most in a few months; or it may, even with the best of treatment, be prolonged for a good many months; but the greatest mischief is wrought in those cases where it is tardily or improperly treated and where it is allowed to run through a chronic course of months or years. And then in the case of the young, unmarried man, a crime is committed when he is permitted on the part of his medical advisers, or presumes on his own responsibility, to get married before the disease is finally eradicated.

How many cases we see of strong, healthy young women, who have never experienced a day of sickness, who marry some young man with just such a case of uncured gonococcus infection, and then, in less than a year after the marriage, the young bride is in the hospital, dangerously sick, with high fever, and ultimately undergoes a surgical operation which, in many instances, forever precludes the possibility of her becoming a mother. She has been ruthlessly infected through the criminal carelessness of her husband who married her having every reason to know that he was not fully cured; she has been unsexed and in many instances practically ruined for life.

The modern treatment of the disease consists of three parts: First: combating the infection with local antiseptics under the direction of a skilled physician; Second: the use of gonococcus vaccines, and, Third: good general hygiene and every other effort tending to upbuild the patient's health and resistance. And the treatment must be carried out conscientiously and continuously until a cure is effected. The evidence of complete cure consists in certain examinations of the urine, local examinations, and in the so-called "complement fixation test," which is a test for gonorrhea that is analogous to the Wassermann test for syphilis, and while it is neither so valuable nor so reliable, yet it is a considerable aid in helping to check up doubtful cases, as regards permanency of cure.

Every intelligent person should be warned against the dangers of neglecting the treatment of gonorrhea, which, in the case of the male, may result in urethral stricture, gonorrheal rheumatism, or more serious prostatic and glandular trouble and even in sterility. In the case of the female, there is the same danger of gonorrheal rheumatism, but the chief jeopardy is that the infection may ascend up the generative passages, and reach the Fallopian tubes and produce

infection on one or both sides that may result in either a serious surgical operation or sterility, if not both. Emphatic warning should also be given against depending upon home treatment or prescriptions and remedies recommended by druggists, all of which will prove more or less futile and lead to bitter disappointment and in many instances to serious consequences. When you are infected with a venereal disease, go to the best specialist in that line whom you know, or take the matter up with your family physician and get advice as to where you should go for treatment. If limited in means, proceed at once to a dispensary or other charitable institution for the care of such cases.

OTHER VENEREAL DISEASES

Soft chancre, in contradistinction to the chancre which constitutes the initial lesion of syphilis, is a semifilth disease of microbic origin, associated with and affecting the sexual organs. It is not always easy for the novice to differentiate between this local and apparently harmless chancre and the initial lesion of syphilis, but the experienced physician will always be able to make such a diagnosis. This disease is purely local and leaves no known constitutional after-effects. It has led many of its victims to fear that they had syphilis, and to spend unnecessary worry, time, and money in being treated for a disease they never had.

There has recently appeared in some of the large cities of this country a calamitous sexual disorder known as "The Fourth Disease." But few cases, thus far, have been reported, but it is a frightful affliction consisting of a sort of gangrenous destruction of the sexual organs. It is reputed to be contracted as the result of certain unnatural and reprehensible sex practices, and would indeed prove to be a veritable plague if it should become greatly increased in frequency.

Much of the prostatic trouble of old men and the so-called "female complaints" of women owe their origin to venereal infections, while of course many instances are due to perfectly natural causes — to age in the case of prostatic enlargement — and are in no way connected with these diseases of sex misbehavior.

Many cases of so-called "female complaint" — if they are not more or less imaginary — owe their existence directly or indirectly to the performance of abortions. One authority, not long since, estimated that one-half of all pregnancies in the United States were terminated by abortion, while another physician estimates that there are between 50,000 and 75,000 abortions performed each year in Chicago.

PROSTITUTION

The American Social Hygiene Association quotes Vedder as saying that 90 per cent of all sexually acquired syphilitic infections in men are derived from prostitutes, either professional or amateur; 72 per cent of all prostitutes have at least one venereal disease, and a large proportion are infective at any given moment. This conclusion is an average of four extensive studies made in this country. Another set of four studies showed an average of 96 per cent infected. For example, Ball and Thomas found that 97 per cent of 320 prostitutes on the "Barbary Coast," San Francisco, had syphilis, and the Detroit Health Department found that 94 per cent of 224 women in the Detroit red-light district had some form of venereal infection.

Sir William Osler is quoted as saying that 85 per cent of prostitutes in Cologne are syphilitic.

Perhaps the most striking way of making clear how widely prostitutes may spread venereal diseases is to call attention to the number of men which one immoral woman may entertain in one day. The Chicago Vice Commission quotes the testi-

mony of one case which went to the Supreme Court: "It is shown that six regular inmates, on four consecutive days, received 394 men, an average of between 65 and 66 per day, or 13 per day each." There is no need of multiplying illustrations. Even the inmates of the poorly advertised houses of prostitution which are maintained in spite of the abolition of the old red-light districts are capable of spreading infection broadcast.

Someone has estimated that we have over 1,000,000 prostitutes in the United States; that this vast army of vice requires 60,000 recruits annually, 5,000 a month, almost 200 a night — one every 8 minutes. This is probably estimated on the basis of opinion that the average length of life for the public prostitute is little more than five years.

The recent experiences of the medical officers of the United States Army have demonstrated that prostitution can be controlled and venereal diseases largely prevented.

It should be said to the credit of the military authorities in the recent World War that they did not permit the repetition of the disgraceful mobilization of the forces of vice which characterized the assembly of our soldiers a short time before on the Mexican border, where syphilitic prostitutes are known to have served one hundred men a day.

In Europe the war increased syphilis over 50 per cent in many cities; while venereal disease caused more incapacity for military service than all the fighting at the front in the early days of the World War — at least that was the report of one of the great powers for the first eighteen months of the war.

Stokes estimates the number of persons in the United States who have had syphilis as 3,842,526, and further adds: "Since public and secret prostitution serve as the principal agencies for the dissemination of the disease, it follows that anything tending to decrease the amount of

disease in prostitutes on the one hand, or to diminish the amount of promiscuous activity on the other, will retard the spread of syphilis; 80 to 85 per cent of prostitutes at some time in their careers acquire the disease (syphilis)."

Stokes, averaging a number of large European cities, found that not more than 40 per cent of prostitutes were even free of the outward signs of syphilis, to say nothing of what laboratory tests might have revealed. It is more than evident that prostitution is admirably fitted to play the leading rôle in the dissemination of this disease.

VENEREAL DISEASE STATISTICS

Almost 4,000,000 persons in the United States are estimated to have had syphilis some time in their past lives.

Among the troops in the Philippines the venereal morbidity during the year 1904, was 297 per 1,000, largely exceeding the morbidity from malarial fevers and diarrhea, as 22 out of every 1,000 soldiers were constantly ineffective from venereal disease — four times as many as from any other disease. The statistics outside of army and navy service are not available, but there is some reason to believe that they might show an even larger morbidity.

The report of the Committee of Seven (New York) shows that in private practice nearly 30 per cent of venereally infected women were contaminated by their husbands. The report of the Committee of Sanitary and Moral Prophylaxis (Baltimore) shows that nearly 40 per cent of the infections in women seen in private practice were communicated in married life. Says one surgeon: "My own observations at the New York Hospital, extending over a period of several years, would indicate that fully 70 per cent of all women who came there for treatment of syphilis were respectable married women who had been infected by their husbands."

Gynecologists furnish statistical evidence showing that

80 per cent of the deaths due to inflammatory diseases peculiar to women and about 70 per cent of all the work done by specialists for diseases of women is caused by gonorrhea.

It is, of course, almost impossible to secure reliable statistics on a large scale respecting venereal disorders. Some recent estimates by reliable authorities are as follows: Blaschko thinks that of the clerks of Berlin from 18 to 28 years of age, 45 per cent have syphilis. Pinkus estimates that one man in five in Germany has had it. Vedder says that 20 per cent of the men applying for army enlistment in this country have had syphilis. He also states that 5 per cent of West Point entrants are infected. Nicols says from 5 to 7 per cent of the army have the disease. Some general conclusions based on these estimates for the whole country would be as follows:

1. About one man in ten has syphilis.
2. Women have the disease in about the proportion of one woman to five men.
3. This would give us in the United States (excluding all under 15 years of age) about 4,000,000 syphilitics.

In Laennec's clinic of Paris 15 per cent of the women and 25 per cent of the men had syphilis.

Erb thinks that 12 per cent of the males of both Berlin and London are infected.

Fournier estimates 15 per cent of the males of Paris as having syphilis.

Collies says that 9.2 per cent of British workingmen show syphilis by the Wassermann test.

Of 1,000,000 patients in the United States Public Health and War Hospital service 8 per cent had syphilis.

Pusey thinks that 5 per cent of the men and 1 per cent of the women in this country are syphilitic—about 3 per cent of the entire population. That 80 to 85 per cent of American prostitutes have syphilis at some time.

Vedder and Hough estimate that 10 per cent of the adult males in the United States have had syphilis.

Statistics based on 180,000 cases show one child in 148, from 2 to 12 years of age, has so-called hereditary syphilis.

It may surprise some to know that while tuberculosis claims 1,000,000 every year, considerably more than that number (one authority estimating it at two and a half times more) annually contract venereal diseases — of one sort or another.

Dr. Prince A. Morrow declares :

This social danger comes from frequent introductions of these diseases into marriage. The frequency of marital contamination does not admit of exact mathematical expression, as both social sentiment and professional ethics unite to cover up and conceal it. Possibly 10 per cent of men who marry infect their wives with some form of venereal disease.

Williams estimates that :

Ten per cent of patients in Massachusetts State Hospital for Insane have syphilitic insanity. Fifteen per cent in Boston Psychopathic Hospital have syphilis in some form. In New York State Hospital 12.7 per cent have syphilitic insanity; and that in the next five years, there are 1,500 persons in Massachusetts who will go insane through syphilis.

In the Austrian Army, of 4,134 cases of syphilis studied, 4.6 per cent developed paresis (softening of the brain); while 1.6 per cent developed tabes — locomotor ataxia.

Gonorrhea is transmitted to wife and child, causing about 50 per cent of all the operations upon the generative organs of women, and about 25 per cent of all blindness in the United States.

There is undoubtedly a greater number of persons infected with gonorrhea in the country at any time than there are syphilitics; and 5,000,000 is probably a very conservative estimate of the number of men and women who have the disease in some stage or other at the present time — or who

have had it so recently as to make it doubtful if they are completely cured.

I think the best authorities doubt if syphilis is on the increase in this country. It is probably about stationary at present.

THE VENEREAL PROBLEM

One of the physicians of the United States Public Health Service (Dr. Stone) recently said:

There isn't any problem as great before us as the problem of venereal disease control, the question of handling it, the question of controlling the hidden menace of society, the diseases of gonorrhea and syphilis that are sapping at the vitals of practically every young man in America. It is estimated that 770,000 men reach the age of 21 every year in the United States. Of these 770,000 a conservative estimate puts over 450,000 of them, or 60 per cent, as contracting gonorrhea or syphilis before they reach the age of 30 years. Isn't the problem a big one? Isn't the problem a big one when 60 per cent of our young men contract a venereal disease before they reach the age of 30? Isn't the problem big enough for the medical profession to wade into and say we are going to clean it up? We have been facing for too many years these hidden diseases. They haven't been brought into the light of day. We have been allowing the venereal diseases to steal out in the dark and stab our young manhood in the back and then run away—all this because of that damnable curse of society—mock modesty—this curse has taught us to hide behind our hands and blush at the mention of the holiest of all functions in nature, the reproductive function, and has taught us to blush and say: "Oh, we must not talk about that; we must not say anything at all about it; I tell my child? Oh, no, no, no! It is wrong to speak of it."

When you figure the cost of venereal diseases to society, you find that it is estimated that the venereal diseases cause a total—direct and indirect—economic loss of around \$5,000,000,000 a year. If the average employer would take the trouble to employ a good doctor to examine every one of his employees and to instruct that doctor that in the event an individual was found to be suffering from a venereal dis-

ease he should not be discharged but treated as he would if he had some other trouble, the efficiency of their men would be raised from 50 to 75 per cent.

HOW TO FIGHT THE BLACK PLAGUE

The repeated sifting of the facts which have accumulated in recent years by important investigations, such as that of the Sydenham Commission in Great Britain and the Society for Combatting Sexual Disease in Germany, and the legislative programs already under way, have gradually crystallized into fairly definite form, the undoubted essentials of a program for controlling venereal diseases, syphilis among them. These have been summarized as follows:

1. The provision of universally available good treatment, at the expense of the state, if necessary, for the disease in question.
2. The provision by the state of efficient means of recognizing the diseases at the earliest possible time and with the greatest possible certainty in any given time.
3. The suppression of quack practice, drug-store prescribing, and advertising of cures for these diseases.
4. Moral and educational prophylaxis and the vigorous suppression of prostitution.

In addition to these measures, which are common to all proposals and working systems for the control of sexual disease, certain other recommendations may be classed as debatable, inasmuch as they are still under discussion. These are as follows:

1. General instruction in personal prophylaxis for the population at large; the removal of the whole question from the realms of religion and ethics.
2. Compulsory measures and penalties obliging patients to receive treatment and continue it until cured, regardless of their own desires in the matter.

3. Notification or reporting of cases of sexual disease to the health authorities, treating these diseases just as we do smallpox or tuberculosis.

4. Indirect legislation, as it might be called, which aims to detect infected persons before they enter on marriage rather than at the outset of the disease, either by releasing the physician in charge of the case from the bond of professional confidence, or by requiring health certificates before marriage, and which annuls marriage after infection is discovered.

Last, but not least, let us emphasize continence. One of the important facts to teach boys is that continence is compatible with health. The sex glands are like the tear glands and the sweat glands, in that they do not atrophy with disuse. Benjamin Franklin taught, as many another man of influence believes today, that the exercise of the sexual functions is necessary for health. This is a mistake and has done much harm. A statement declaring that there is no evidence that abstinence is "inconsistent with the highest physical, mental, and moral efficiency" has recently been signed by 360 of the foremost medical authorities in the United States.

HEREDITY AND MORALITY

While venereal infection is largely a question of scientific treatment and sanitary regulation, the question of character and morality which are indirectly involved in any discussion of the sexual vices must be looked upon as falling into the domains of education and inheritance. Early training has much to do with the acquirement of the moral or righteous viewpoint of sex conduct.

But, independent of education and training, heredity has a great deal to do with the determination of the individual's fundamental moral character. The recent disclosures of

numerous eugenic investigations serve unmistakably to show that sexual morality is a trait of human inheritance. Some families are inherently moral, some are notoriously and inherently immoral. Not only that, but sexually speaking, some races are more moral than others.

While immorality is so often associated with various shades of feeble-mindedness, and various degrees of biologic degeneracy, at the same time these tendencies toward vice are also found in those families and strains which are not otherwise degenerate or defective. That is, the eugenicist today recognizes moral degeneracy or sexual defectiveness as a specific form of race decadence which is directly transmissible from one generation to the next.

And so, it would seem, the time has come when the social reformer — the moralist — must take into his counsels the eugenicist with his discoveries and teachings concerning the laws of inheritance as related to sex morality. It would seem that we cannot expect any great degree of moral progress among a people if we do nothing to cut off the unlimited reproduction of those families and strains which are inherently immoral. And especially must we recognize the menacing threat of this condition of affairs if, at the same time, the more highly moral stocks of the race enlist in the practice of race suicide.

These perplexing problems of vice and immorality are not going to be solved, either by the physicians, on the one hand, or the sociologists and reformers, on the other, until we have taken into our counsels, and given heed to the teachings of, the eugenicists.

SUMMARY OF THE CHAPTER

1. For centuries the Great Black Plague — syphilis and gonorrhea — has scourged society in the presence of the

silence-conspiracy on the part of the public, the church, and the medical profession.

2. Columbus discovered syphilis in America and his sailors carried it back to Europe. Together with corn and tobacco it represents America's contribution to civilization.

3. Syphilis, while usually contracted from illicit sex relations, can also be picked up innocently from infected cups, towels, and by kissing.

4. Syphilis is probably not, technically speaking, inherited; although a child may be born with congenital syphilis — contracted from its infected mother.

5. Syphilis is caused by a parasite (*spirochaeta pallida*) and runs a regular course from the time of infection to the later and severe third state — constitutional manifestations.

6. Mild syphilitic infection may be so slight in the early symptoms as entirely to escape notice; but yet result in the most formidable later manifestations.

7. The Wassermann test if properly made (though not infallible) represents the best-known method of determining the presence of the disease in doubtful cases.

8. "606" is not a "cure-all" for syphilis; it is merely another valuable remedy in addition to the old mercury standby and the iodids in the later stages of the disease.

9. Most insurance companies refuse to accept untreated syphilitics; some companies require extra premiums for those accepted even after treatment and often refuse to keep them on their books after 55 years of age.

10. The cure of syphilis requires persistent and intelligent treatment over a period of years, checked by the Wassermann test and supervised by an experienced physician. Marriage is only safe after such a scientific course of treatment.

11. A syphilitic should give continuous negative Wassermann tests at least two years before getting married.

12. Get cured. That is the only way to prevent infecting an innocent wife; to prevent having a stillborn or infected child; and to avoid locomotor ataxia, heart disease, or softening of the brain in later life.

13. Gonorrhea is an infection of the mucous membrane by the microbe "gonococcus." It is usually contracted by sex relations.

14. The gonococcus may infect the eye, producing blindness; and may invade the blood, producing rheumatism. It also produces sterility.

15. Gonorrhea kills about one person in 200. It produces painful strictures, much of the birth-blindness of babies, and most of the surgical operations performed upon infected wives.

16. Gonorrhea is often difficult to cure. It requires persistent and skilful treatment. It is a crime to marry until the disease is pronounced cured by a competent physician.

17. The modern treatment of gonorrhea consists of three parts: combating the local infection, gonococcus vaccines, and good general hygiene.

18. Neglected gonorrhea in the female may not only result in sterility, but often necessitates a surgical operation for the removal of "pus tubes."

19. Soft chancre is a local venereal disease without any constitutional symptoms. When mistaken for syphilis it may cause much needless worry.

20. Much of the prostatic trouble of old men and the "female complaints" of women owe their origin to venereal infection, though, of course, not all.

21. Ninety per cent of syphilis is probably acquired from prostitutes. Seventy-two per cent of prostitutes have at least one venereal disorder.

22. Of 320 prostitutes examined (San Francisco) 97 per cent had syphilis. In Detroit 94 per cent of those examined had it.

23. It is estimated that there are 1,000,000 prostitutes and "loose women" in this country. This means a new recruit every 8 minutes — 200 every night. A prostitute's average length of life is about five years.

24. Stokes thinks that about 4,000,000 persons in the United States have had syphilis. In one hospital 70 per cent of the women treated were infected by their husbands.

25. About 70 per cent of all the work done by specialists in diseases of women is caused by gonorrhea.

26. Pinkus estimates one man in five in Germany has had syphilis. Vedder says 5 per cent of West Point entrants are infected.

27. Fusey thinks 5 per cent of men in this country have syphilis, 1 per cent of the women, and about 3 per cent of the entire population.

28. Hough estimates 10 per cent of the adult males in this country have had syphilis.

29. One authority says gonorrhea causes 50 per cent of all gynecological operations on women and 25 per cent of all blindness in this country.

30. There are probably 5,000,000 cases of gonorrhea in this country at the present time.

31. Of almost 800,000 young men reaching maturity each year 60 per cent (450,000) contract syphilis or gonorrhea before they are 30 years of age.

32. The direct and indirect economic loss to the country annually from venereal diseases is over \$5,000,000,000.

33. We must fight the Black Plague by: widespread enlightenment, better sex-hygiene teaching, examinations before marriage, provision for prompt and skilful treatment, suppression of advertising quacks, applying common-sense methods to regulation, and teaching our youths that they may be clean and healthy at the same time.

34. Morality is hereditary. Some families are moral, others are inherently immoral. Eugenics must help us solve these problems of vice and venereal infection.

CHAPTER IX

INCREASE IN "OLD-AGE" DISEASES

THE fact that in the United States the general death-rate has steadily fallen for the past several decades, a phenomenon common to all civilized countries, is accepted by many as evidence of a steady gain in national vitality. That there has been a gain in vitality in the younger age groups is unquestionably true, but this gain has served to mask a loss in vitality at the older age periods. This latter phenomenon, a rising mortality in elderly life, is something almost peculiar to the United States. It is not exhibited in the mortality statistics of any of the leading European countries.

Rittenhouse has shown, by a study of the Massachusetts State Registration Reports, that between 1880 and 1909, a period of thirty years, there was an increase of nearly 100 per cent in the mortality from degenerative diseases. The increase at each age is shown in the following table:

Ages	1880	1909	Increase	Per Cent
All	23.21	43.26	20.05	86.38
Under 5 years.....	7.92	10.36	2.44	30.8
5-9	2.95	3.95	1.04	35.7
10-14	2.85	4.72	1.87	65.6
15-19	3.10	5.43	2.33	75.2
20-29	4.95	8.09	3.14	63.4
30-39	10.13	18.79	8.66	85.5
40-49	19.70	37.84	18.14	92.1
50-59	39.01	91.30	52.29	134.0
60-69	102.05	212.93	110.88	108.7
70 and over.....	261.10	558.20	297.10	113.0

DEGENERATIVE DISEASES

American men of affairs are today apparently less able to stand the strain of modern working conditions than they were thirty, twenty, or even ten years ago. During the past ten years there has been an alarming increase in the death-rate from "old-age" diseases — heart diseases, arteriosclerosis, Bright's disease, diabetes, and diseases of the digestive and nervous systems — and this in men too young to succumb to these old men's ailments. This increase in a group of 5,000,000 occupied men in this country was as follows:

Apoplexy and nervous diseases.....	19 per cent
Heart disorders	29 per cent
Kidney and urinary diseases.....	43 per cent
Liver and digestive disorders.....	34 per cent

During the past thirty years the mortality from these degenerative diseases has nearly doubled. (See Fig. 9.) Of the hundreds of thousands of American lives that are annually snuffed out by these "old-age" disorders, nearly half die before their time. While men above 60 years old might be said to succumb to them normally, almost 50 per cent of the fatalities recorded are of men under 60, and many thousands of them die under 40 — and these are diseases that, whether in old or young, can be prevented, or at least postponed, for longer or shorter periods, if the facts are known.

WHAT ARE THESE DEGENERATIVE DISEASES?

When all the cells of the human body act in a normal manner, when nothing is present to irritate or destroy them, when each little separate cell is healthy in body and properly performs its functions, we have a bodily condition known as "health." When the cells of the body are poisoned, irri-

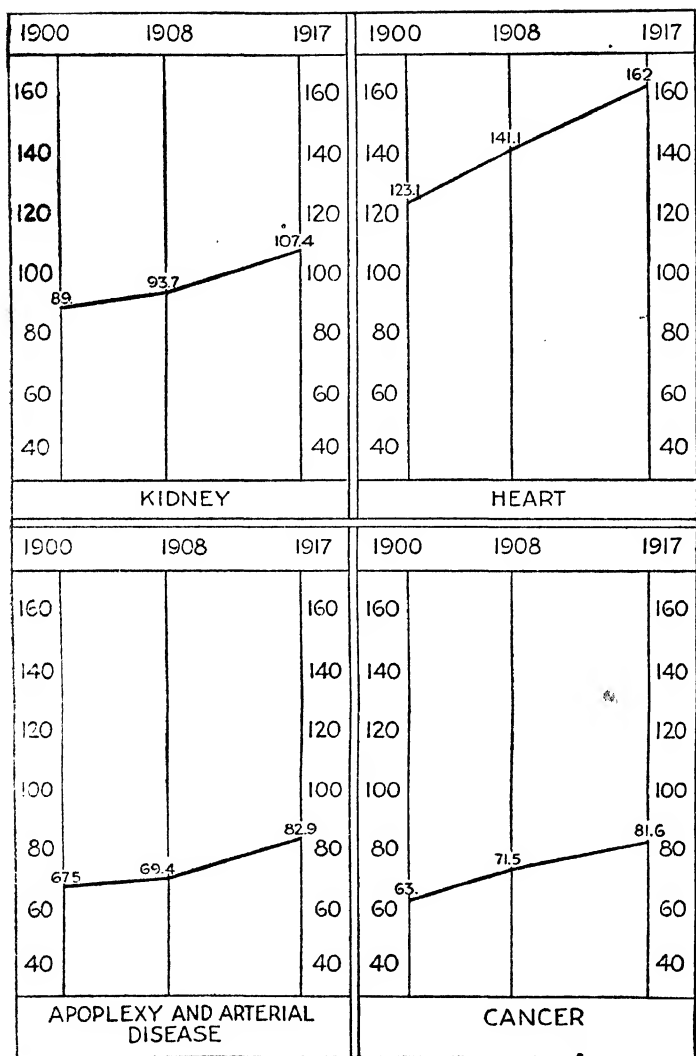


Fig. 9. Graphic showing increase in death-rates from the four leading diseases, covering a period of eighteen years. Figures indicate number of deaths per 100,000 of population

tated, or otherwise crippled or destroyed, so that they are unable properly to perform their work, some form of acute or chronic disease results. (See Fig. 10.) The basis, then, of all disease is in the cell. Organic disease results from a disorganization or derangement in the physical structure of the cell; while functional disease results from disturbance of the functions of the cell.

Cells are often long sick before they die. When cells are very sick and just before death, they sometimes become very granular — become filled with minute sandlike particles. In other cases the cell shows a disposition to imbibe water — it swells up and exhibits numerous vacuoles. These sick cells may later undergo complete granular disintegration, a process which is often accompanied by the formation of more or less fat. One of the most common causes of cell death is chemical poisoning — chemicals taken into the body from the outside, such as alcohol; chemical substances or toxins generated by microbes which may invade the body in disease; and those chemical poisons which are normally generated within the body by the process of metabolism, but which may be overproduced or undereliminated.

In certain diseases and in old age, the cells of different organs in the body undergo atrophic changes. The cell substance literally withers away — shrinks up — and the tissues decrease in size, while their functions are correspondingly destroyed.

When the tissues of the body are poisoned severely, the cells of many of the internal organs begin to show *cloudy swelling*, a form of granular degeneration, which represents the *disorganization of protoplasm*. (See Fig. 10.) These minute, free granules are albuminous bodies — disintegrated protoplasm. When the cells of the heart muscle are affected by cloudy swelling, under the microscope they appear as if they were covered by a fine dust. Recovery from cloudy

swelling is possible if the condition is not allowed to progress too far or to last too long. Fatty degeneration often goes along with this condition.

DIFFERENT SORTS OF CELL DEGENERATION

In obesity enormous amounts of fat may be deposited around the heart and other organs, but this fat is developed in the usual manner from the connective tissue cells. In other diseases, the muscle tissues, the muscle cells of the heart, and the cells of other organs are found to be filled up more or less with small droplets of fat — fat which has been made from the protoplasm of the muscle or other cell. This is *fatty degeneration* and is a serious disease of the cell, which, when it has become established, is practically incurable. (See Fig. 10.) It occurs in the liver, heart, kidneys, and also in the epithelial tissues.

When the secretory cells found in the glands in various parts of the body are long irritated or overworked, as in the case of the cells in the glands of the stomach and bowel, in those persons who partake of large quantities of mustard, pepper, vinegar, etc., the normal cells begin to disappear and their place is gradually taken by cells which secrete mucus in the place of the regular digestive juices. This process is *mucous degeneration* of the epithelial cells. (See Fig. 10.)

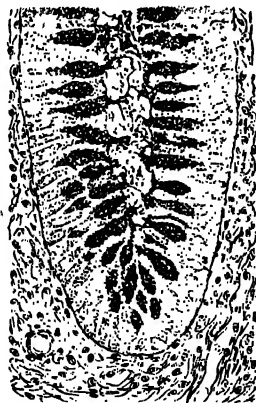
In old age and as a result of constant irritation and long-continued chemical poisoning, the connective tissues of the blood vessels may undergo *amyloid degeneration*. (See Fig. 10.) This amyloid is a complex starchlike, albuminoid substance, which becomes deposited in the connective tissues, greatly increasing their size. This condition may occur in any of the internal organs. Fatty degeneration is often associated with amyloid disease. This disease of the cells is incurable. It gradually crowds out the normal elements of the tissues, and in the case of the blood vessels, they soon lose their



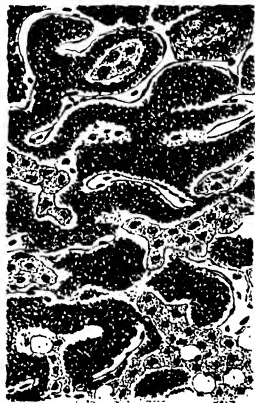
CLOUDY SWELLING AND
GRANULAR DEGENERATION



FATTY DEGENERATION



MUCUS DEGENERATION



AMYLOID DEGENERATION

Fig. 10. Forms of cell degeneration in the human body

elasticity, become stiff, and later are hardened by the deposition of lime salts, thus producing combined arteriosclerosis and arterial degeneration.

CELL POISONS

Of all the causes of cell death which are under our control, that of poisoning is the chief, and so, before finishing our study of the diseases of the cell, it will be advisable to review the many poisonous substances which are able to cripple or destroy the cells of the body.

1. *Impure air*.—Bad air not only directly impairs the health of the cells of the lungs, but indirectly interferes with the welfare of every cell in the body. Smoke, dust, and dirt in the air may actually destroy many cells in the lungs. Dirty air predisposes to the contraction of tuberculosis, pneumonia, and other lung diseases.

2. *Contaminated water*.—Impure and germ-laden water is able to destroy the life of the cells by causing many diseases, such as typhoid fever and dysentery.

3. *Bad food*.—Food may carry microbes or parasites into the body, or it may be decaying and hence filled with dangerous poisons (ptomaines), all of which are injurious to the health of the cells. Many of the substances commonly used to preserve and adulterate foods are also harmful to the cells.

4. *Metabolic poisons*.—The normal poisons which are formed in the body, as will be later shown, are all more or less poisonous to the different cells. If these bodily poisons are not promptly eliminated, or if they are overproduced, the cells must suffer. It is in this way that neglect of proper bathing, deficient exercise, overeating, constipation, and the drinking of too little water, are all concerned in poisoning, crippling, and even killing the cells of the body.

5. *Condiments*.—Certain substances commonly used as foods or relishes, are able, when used in large quantities, to

cripple and weaken the cells. Belonging to this group of agents may be mentioned vinegar, mustard, pepper, and other irritating and pungent condiments. Tea and coffee are also detrimental, especially to the nerve cells. The concentrated juices of animal foods, such as beef tea, weaken the vitality of the cells in the stomach and bowel.

6. *Tobacco and narcotics*.—Tobacco is a poison to the cells of the body, especially in the case of the growing body. It destroys the cells and prevents their growth. This explains the "stunting" effects of cigarette smoking upon young boys. It is especially bad when the smoke is inhaled. Opium, morphine, cocaine, and other narcotic drugs all behave in the same manner, and must be regarded as dangerous enemies to health.

7. *Alcohol*.—Of all the cell irritants, or poisons, commonly used by man, alcohol undoubtedly stands as the chief of destroyers. Careful study by microscopic examination has conclusively proven that alcohol is a cell poison. Alcohol is produced by the action of the yeast plant, and it is found to be highly poisonous to all other cells or organisms which are above it in the biologic scale; that is, every plant or animal which is higher than the yeast plant in the scale of life, is either directly injured or destroyed by alcohol.

8. *Syphilitic toxins*—and the poisons of numerous other microbic and parasitic diseases are highly injurious to the living cells of the human body, which, when long exposed to their irritating influence, the body resents by a reaction which results in the production of numerous of the so-called "old-age" diseases.

WHAT IS OLD AGE?

It would seem to appear that old age, then, is more or less the result of chronic poisoning of the cells of the body, more particularly affecting the cells of the blood vessels, kidneys,

heart, etc., and this is just why the so-called "old-age" diseases which we have discussed in this chapter, are greatly on the increase at the present time, instead of being on the decrease as is the case with most other disorders causing death. Our much-boasted advancement in sanitation and public health has had so little to do with improving personal hygienic practices of the people — in fact these practices have become, it would seem, gradually more and more pernicious, so that the death-rate, instead of being improved, has been alarmingly increased.

A more detailed consideration of the individual members of this group of "old-age" diseases, and also a study of their causes and the best means of prevention, will be discussed in the chapters which immediately follow.

Again, attention should be called to the fact that longevity is very definitely hereditary. We have both long-lived and short-lived families. Eugenic investigations disclose that there exists even a tendency for certain of these so-called degenerative diseases to "run in families." There is both a constitutional superiority and inferiority which is transmitted from one generation to the other, in accordance with the laws of human inheritance. The biologists claim that the general ability to resist disease and live long is largely a matter of heredity.

SUMMARY OF THE CHAPTER

1. While the average length of life has apparently increased among all nations, it is chiefly during the earlier years of life that the saving has been made.
2. In America this increase in the earlier years is to some extent offset by an actual decrease in the older age periods.
3. Rittenhouse claimed that the degenerative diseases have increased 100 per cent in Massachusetts in thirty years.
4. In a certain group of 5,000,000 men there occurred in

ten years an increase in kidney disorders of 43 per cent, and heart disorder 29 per cent.

5. The basic cause of these "old-age" or degenerative disorders is chronic irritation or poisoning of the cells of the blood vessels, kidneys, liver, and other vital organs; thus bringing about destructive changes, and deterioration.

6. These cell poisons are numerous and include: impure air, bad water, contaminated food, self-poisoning (auto-intoxication), high seasoning, tobacco, alcohol, and the toxins of syphilis and other microbic diseases.

7. The "old-age" diseases embrace apoplexy, paralysis, heart disorders, kidney diseases (Bright's disease), liver troubles, high blood-pressure with hardening of the arteries, etc.

8. Public sanitation has lengthened the lives of those below 40; but "habit disorders" are increasingly shortening the lives of those above 40 years.

9. These "old-age" diseases are largely "symptomless" — that is, they give little warning of their presence.

10. These diseases are called degenerative because of the fact that they are characterized by certain cell changes such as: fatty degeneration, mucous degeneration, amyloid degeneration, etc.

11. Old age results from chronic poison and long-continued overuse of the bodily structures — particularly the heart, liver, kidneys, and arteries.

12. After all, inheritance plays an important rôle in our ability to resist disease and live long.

CHAPTER X

HEART FAILURE, HARDENED ARTERIES, AND BRIGHT'S DISEASE

HEART disorders, arterial sclerosis, and kidney troubles represent, with their consequences of apoplexy, paralysis, etc., the chief disease manifestations of premature old age that have to do with crippling the efficiency and running up the mortality rates of the American people. We have already considered such other important causes of disease and death as cancer, tuberculosis, venereal infections, together with pneumonia and influenza — diseases which are yet to be conquered — although we have not discussed diabetes which annually claims 17 people per 100,000 in this country, for the simple reason that we do not really know how to classify this troublesome disorder. It is doubtful if this disease belongs to the degenerative type. While it is more or less a constitutional disorder and not a kidney ailment, nevertheless there remains much to be learned about its causation.

HEART DISEASES INCREASING

While there are many forms of heart disease which are responsible for the death-rate that might be charged up to heart disorders, the one that concerns us most is heart failure — failure of the blood-pump owing to arterial degeneration and its consequent high blood-pressure.

When the blood-pressure steadily mounts upward, eventually one of two things happens: either the heart — the pump — will give way, or the blood vessels — the more or

less hardened arteries — connected with the pump, will burst. This bursting of the blood vessels usually takes place in the brain and is popularly known as a “stroke” of apoplexy, and the resulting paralysis on one or both sides of the body is due to the pressure of the accumulating blood clot on the brain centers. During the last year for which we have official reports there were 198.4 deaths per 100,000 of population in the United States from heart disorders, the highest death-rate for any disease. It means that in one year practically one person out of every 500 died of some form of heart disease.

Furthermore, this rate increased from 159 to 198.4 in ten years. No other cause of death is mounting with comparable rapidity. Since very few persons less than 40 years of age die with heart disease, and since both the heavy death-rates and the larger populations are in the younger years, the heavy heart disease rate means that the chance that any man over 40 will pass away from heart disease is very great.

OUR LIVING PUMP

The heart is a hollow, muscular organ about the size of the fist. It consists of four compartments, two on either side. The heart muscle fibers are peculiar to themselves, resembling both voluntary and involuntary muscle. The two lower and larger chambers of the heart are called ventricles. The upper and smaller chambers are called auricles. The heart contains four sets of valves which guard the openings between its various chambers, as well as the large vessels leading to the lungs and the general circulation.

The blood vessels consist of arteries, veins, and capillaries. The arteries carry the blood away from the heart to various parts of the body, and consist of three distinct layers: a delicate inner lining, called endothelium, with middle and outer layers of muscular, elastic, and connective tissue. The capil-

laries are a system of small blood vessels which connect the arteries with the veins. Like the arteries, they possess contractile power. Arteriosclerosis, or hardening of the arteries, means that the delicate lining of the blood vessels has been chronically irritated so that a low-grade inflammation has been set up which has resulted in increasing the connective tissue in the middle layer — all of which results in stiffening, and with the later deposition of lime salts — terminates in hardening.

All the blood of the body (or a volume equal thereto) passes through the heart every minute. The arteries — the blood vessels leading out from the heart — have been estimated to represent a length of about 1,000 miles. The skin is richly supplied with capillaries containing about 10,000 square feet. The heart does a work every twenty-four hours equal to lifting about 124 tons one foot high.

EARLY SYMPTOMS OF HEART DISEASE

Most of the groundwork for heart disease is laid down in childhood. When young adults are systematically examined, as is done now on entrance to college, it is found that a large proportion have heart murmurs. These subjects deny that they have ever had heart disease or that they have any symptoms of it at the time of examination. When closely questioned, they tell of having had tonsilitis, rheumatism, or St. Vitus' dance, or some eruptive disease, but they thought recovery had been complete.

The early symptoms of heart disease are:

1. Shortness of breath. Inability to get one's "second wind" as readily as the average person.
2. Swelling of the ankles — particularly if the ankles "pit" on pressure. This swelling is more prone to appear in the evening.
3. Rapid, palpitating, or thumping heart. These symp-

toms may or may not be an evidence of heart trouble — they may arise from nervousness or indigestion, but they should be investigated.

4. Pain in the region of the heart — especially if it is severe and “vicelike.” In persons over 50 years of age this may indicate the coming on of angina pectoris.

There are certain symptoms which cause many people to think they have heart disease, but which no one should worry about. Among these are:

1. Pains in the chest and particularly around the heart.
2. False angina or radiating pains around the chest and down the arm occurring in persons under 40 years of age.
3. Palpitation of heart not following exertion.
4. Coldness of the hands and feet, feeling of numbness or “going to sleep” of the hands and feet, ordinary dizziness and “swimming of the head,” rushing of blood to the head, hearing the heart pound in the ears or feeling it pulsate in the abdomen.

Most of these symptoms are of no great significance. They do not indicate heart disease.

VALVULAR DISEASE

Mitral stenosis is most common in women. In this disorder there is a narrowing of the opening between the two cavities on the left side of the heart. Those who have this form of heart trouble get out of breath very easily and are able to work at only such tasks as stenography, operating switchboards, secretaryships, etc. A man so affected might do many sorts of office or professional work.

Mitral regurgitation is the name given to that condition where this passage between the two cavities of the left side of the heart is too large for the valve to close it properly. This form of heart disorder probably causes the least trouble as compared with other sorts of valvular disorders. Men

have this form of heart ailment more than women. Persons with this affliction work at the professions and at most of the trades which do not require sudden "spurts" of effort. Properly managed, this form of heart disease should not tend to shorten life.

Aortic regurgitation is a condition in which the passage leading from the ventricle to the aorta is too large — so that the blood runs back into the heart. Patients with this trouble can do light gardening, conduct stores, etc. Those who suffer from aortic stenosis — narrowing of this passageway leading to the aorta — cannot do much real work unless the heart is compensated.

Whatever the form of the heart's valvular disorders, the patient cannot do much work or stand much physical effort unless the heart is compensated. Compensation means simply that the heart muscle as a whole has so enlarged that it can do the extra work required to overcome these results of valvular leaks (regurgitation), or narrowing of the openings between the chambers of the heart (stenosis). When compensation is perfect a heart patient can go about ordinary work and activities just about as though nothing was wrong. The person with heart disease of that type can live just as long as other persons of his age if he will follow certain simple rules. Heart disease is a disease to be lived with, and it is not difficult to learn how.

If compensation is broken, the subject must rest until it has been reestablished. In most cases it is necessary to go to bed and to stay there a long time to reestablish compensation.

HIGH BLOOD-PRESSURE

As regards health and disease, the most important item connected with the study of the circulation is the subject of blood-pressure. We have only recently come to understand how important this question is in its relation to health.

The evil results of this high pressure will be considered before we take up the causes. They may be enumerated as follows:

1. *Arteriosclerosis*.—High blood-pressure is one of the recognized causes of arteriosclerosis—degeneration and hardening of the arteries; and arteriosclerosis is the real cause of old age, or senile degeneration. Let us remember this vicious circle: Hardened arteries raise the blood-pressure—and high blood-pressure tends further to harden the arteries.

2. *Apoplexy*.—Since high blood-pressure is one of the causes of hardening of the arteries, it then becomes apparent that it is the indirect cause of apoplexy, for this is merely a rupture of the small arteries in the brain, which are unable to withstand the enormous pressure required in order to force the blood through the stiff and shrunken vessels.

3. *Bright's disease*.—This is a condition in which the arteries of the kidneys are shriveling up as the result of poisons and high blood-pressure. This disease, with its attendant evils of dropsy and heart failure, is also largely attributable to high-pressure influences.

4. *Heart failure*.—It must be apparent that if the blood-pressure is to be constantly increased in order to nourish the body and overcome the growing resistance of hardening arteries, the heart—the blood-pump—will be called upon to exert increased force; and this it does, by hypertrophy, until by and by the walls are overstretched, the heart becomes permanently dilated, and when the end comes, it is called “heart failure.”

5. *Certain mental diseases*—are also indirectly produced or influenced by high or low blood-pressure, such as mania, melancholy, etc., as well as ordinary nervousness, sleeplessness, and many common everyday maladies. High pressure may be both a cause and a result of disease.

CHRONIC KIDNEY DISORDERS

There are many forms of acute inflammation of the kidney, and its resultant injury to that organ, as well as numerous chronic degenerative conditions, due mainly to hardening of the arteries. These kidney disorders are commonly known as Bright's disease, and while it may be a local disease in some instances, it usually is associated with degeneration or hardening of the blood vessels, and both the heart and liver are usually more or less involved. In the last year for which we have official reports, there were 107.4 deaths per 100,000 of population from kidney disorders in the United States. Kidney disorders have increased 20.7 in the registration area since 1900.

The kidney is divided into numerous compartments, each containing vast numbers of excreting tubules which are lined with epithelium, and whose general structure much resembles that of the skin. Arteries and veins are liberally supplied, and as the blood circulates through these vessels, certain poisons found in the blood-stream are selected by the kidney and excreted (really secreted) through its walls into the urinary tubules, which carry the urine through the ureters to the bladder. It is the chronic inflammation of these urinary tubules that causes nephritis, or Bright's disease. It has been estimated that the urinary tubules of the kidneys, if all were united end to end, would form a single drainage tube over 15 miles in length.

The skin is closely related to the kidneys in the mode of eliminating poisons from the body and when the kidneys are in any way crippled as a result of disease, the skin may be made to do extra eliminating work and thus help out the kidneys. The average person possesses about 17 square feet of skin. It is estimated that there are 2,500,000 sweat glands in the skin. The area of the openings of all these little sweat

glands is about 11,000 square feet. That is, the body's sewer system which has its openings in the sweat glands of the skin, if represented by a single eliminating tube with but one opening, would have an emptying or discharging surface equal to 11,000 square feet. In many parts of the body there are about 2,500 little sweat pores to the square inch; while the uniting of all the sweat ducts, end to end, which are coiled up in the skin, thus making a single tube, would make a sewer more than 10 miles long.

OVERWORKING THE KIDNEYS

The kidneys excrete a portion of the water contained in the blood, in the effort to keep the blood at the proper consistency. They maintain the balance in the water supply of the body, consequently the more one sweats, the less urine will be passed. A decrease in the amount of water drunk will also decrease the urine. The color of the urine varies from day to day. In health it is something of a straw color. Urinary deposits, as ordinarily observed, are meaningless. They sometimes represent grave disease; but on the other hand, healthy urine, if allowed to stand when containing certain elements, will present deposits of brick-dust appearance.

The kidneys are greatly injured and overworked by the eating of too much protein — such substances as meat, dried beans, and cheese. Protein ashes must be eliminated through the kidneys. Alcohol, tobacco, and other narcotics, also greatly overtax and prematurely wear out the kidneys. Bright's disease is manifested where these organs have been long overworked, inflamed, and so worn out as the result of abuse, that they are unable to do their normal work.

Failure to drink regularly a proper amount of water allows the urine to become high-colored and concentrated; this is

very irritating to the kidneys, and no doubt results in more or less injury to these organs. The health of the kidneys, therefore, depends upon the cultivation of the regular water-drinking habit.

NEPHRITIS — A SYMPTOMLESS DISEASE

Of all the degenerative or "old-age" disorders, chronic Bright's disease is the most stealthy. A middle-aged man or woman can be within a few weeks or months of the grave and be quite unaware of their doom. A vast number of these chronic kidney cases never produce serious or alarming symptoms until their victims are very near their end. This is the reason we urge everybody to submit to an annual medical examination. Years before any discernible symptom would have appeared, the careful examination of the urine together with the blood-pressure findings would have served to indicate the slowly oncoming kidney disorder — and would have pointed out the trouble in time to have done something effectual about it.

A FRIGHTFUL DEATH TOLL

Over 400,000 persons die each year in this country from these so-called "old-age" diseases — heart disorders, arterial degeneration, and kidney diseases. The actual number of deaths from these combined diseases and their indirect consequences cannot be far from half a million each year when we consider that for every 100,000 of population heart disorders claim 198.4; Bright's disease and kidney disorders 118.5; cerebral hemorrhage (apoplexy) 99.8, and cirrhosis of the liver 11.4; making a grand total of 428.1 annual deaths per 100,000.

The only group of diseases which can compare with this frightful loss is the respiratory group — tuberculosis, pneumonia, influenza, bronchitis, etc. Per 100,000 of population

this group has a death-rate as follows: pulmonary tuberculosis 128.7; pneumonia 164.8; influenza 17.2; bronchitis 16.3, yielding a grand total for this group of lung disorders of 327 per 100,000.

If we count the liver disorders and numerous other causes of death indirectly related to these degenerative disorders, it is highly probable that the annual death-rate is very close to 500,000 for the entire group of degenerative diseases. About 65,000 citizens die of these "old-age" disorders before they are 50 years of age; and almost 30,000 die before they are 40 years old.

And these disorders are not like cancer — we know the causes to a great extent and know what to do in most every case to prolong life. Has not the time about arrived to make a concerted attack on this particular group of our disease enemies?

SUMMARY OF THE CHAPTER

1. The cardio-vascular disorders with their accompanying high blood-pressure and resultant apoplexy, paralysis, etc., represent the chief diseases of premature old age.

2. When the blood-pressure continues to rise, eventually, one of two things is bound to happen, either:

- a. The heart (the pump) will fail, or

- b. The arteries will burst.

3. In the first case death results from heart failure, in the second, apoplexy is followed by paralysis and death sooner or later.

4. During the last year reported, nearly 200 persons per 100,000 died of heart diseases in this country.

5. The death-rate from heart failure has increased from 159 to 198.4 per 100,000 in ten years.

6. Hardened arteries result from the chronic irritation of the delicate lining of the blood vessels from long-continued poisoning.

7. Blood equal to the total volume passes through the heart

every minute; and all blood vessels in the body, if placed end to end, would reach 1,000 miles.

8. There are 10,000 square feet of capillaries in the skin. The heart, every twenty-four hours, does the work of lifting 124 tons one foot high.

9. The early symptoms of heart disease are: shortness of breath; swelling of the ankles; rapid heart; and pain in the region of the heart.

10. There are symptoms which frighten people into fear of heart trouble such as: pains in chest; palpitation, due to gas; cold hands and feet; numbness; dizziness; "swimming of the head;" etc.

11. Persons with valvular heart trouble may work at light tasks but cannot engage in sudden "spurts" of effort. Heart cases can do much light work after "compensation" is established.

12. If "compensation" is broken, the patient must rest in bed until it is reestablished.

13. The one thing characteristic of the present-day social and commercial world is its high tension. The pressure gauge of life registers all the while dangerously near the bursting-point.

14. High blood-pressure is not only a result of the degenerative diseases, but may also, in turn, be a cause for the further hardening of the arteries.

15. Chronic kidney disorders, as a group, are popularly known by the name of Bright's disease. And these disorders have increased 20.7 per cent in this country since 1900.

16. The skin is closely related to the kidney in the work of elimination and may thus be made to help out a diseased pair of kidneys.

17. There are 17 square feet of skin with 2,500,000 sweat glands. The total area of the mouths of these glands is about 11,000 square feet; united, these sweat tubes would make a sewer 10 miles long.

18. Urinary deposits, as ordinarily observed, are meaningless. Sometimes they represent grave disease; on the other hand, healthy urine shows deposits under certain conditions.

19. The kidneys are overworked by: too much protein,

alcohol, tobacco, and other irritating substances, such as the acids of the body and the toxins of disease.

20. The kidneys are greatly injured and irritated by failure to drink a proper amount of water each day.

21. Nephritis (Bright's disease) is largely a "symptomless" disease; and this is just why everyone should be examined once a year.

22. Almost 500,000 die in this country each year from this group of "old-age" disorders; 65,000 die before 50; and 30,000 before they are 40 years old.

CHAPTER XI

CAUSES OF "OLD-AGE" DISORDERS

HAVING studied the degenerative diseases as a class and also noted something of their individual influence in increasing the mortality of the American people, it is altogether fitting at this juncture to summarize the causes of the various "old-age" disorders. These causes may be classified under the following heads:

1. *The habitual use of drugs* — alcohol, tobacco, patent medicines, headache powders, together with the excessive use of tea and coffee.

It must be borne in mind that one ordinarily feels languid, depressed, and good for nothing, when the blood-pressure is too low; whereas one usually feels exhilarated and tiptop when the blood-pressure is high; therefore, there is a constant tendency to make use of those things which increase the blood-pressure, or in cases suffering from low pressure, to resort to the use of high-pressure producers to counteract the unpleasant low-pressure effects.

Tobacco stands foremost among the common causes of increased blood-pressure — and of premature "old-age" disorders. It is well known that when a young man takes his first smoke, he is pale in the face, the small blood vessels of the skin are strongly contracted; the blood is thus forced in upon the internal organs. The blood-pressure, if taken at such a time, is found to be considerably raised; and so throughout life the effect of tobacco using, due to the specific action of the nicotine and other poisons, is that of directly raising the blood-pressure. (A single cigar raises

blood-pressure for over one hour.) The use of tobacco, then, may be regarded as one of the prominent causes of increased blood-pressure in the present generation, and of many of the serious dangers and consequences following, namely, deranged nervous system, hardened arteries, kidney trouble, heart failure, and apoplexy.

The cigars smoked each year in this country, laid end to end, would reach considerably over halfway to the moon. It is safe to estimate that there were smoked of cigarettes, to say nothing of cigars, an average of 5,000 for every young man in the United States between the ages of 12 and 20 years.

The American people spend more money every year for tobacco than for bread. This will give some idea of the enormous consumption of this poisonous weed, and throws much light on one of the causes of the increase, in recent years, of "old-age" disorders.

There is a single tobacco company that has a capacity for making about 10,000,000 cigarettes a day.

Last year the American people smoked 46,680,317,081 cigarettes—ready made—to say nothing of how many were made by the smoker himself from paper and tobacco. Ten years before only 6,836,652,435 cigarettes were used, showing an increase of almost 40,000,000,000 cigarettes in less than ten years. Laid end to end the cigarettes used last year would reach around the world thirty times. In addition to all this we consume about 8,000,000,000 cigars every year. This does not take into account the chewing tobacco consumed nor the millions of pounds of snuff which is used each year. Cigarettes were only introduced in 1876. Their use has steadily increased.

From data obtained not long ago from the United States Census Bureau and other reliable sources, the average daily dose of poisons for every man, woman, and child in the United States is found to be 356 grains of alcohol, 6 grains of

nicotine, 6 grains of caffeine, and 1.5 grains of opium aggregating nearly 364 grains. The influence of such an enormous quantity of drugs must make itself felt in the development of a host of neurotics to crowd our hospitals and asylums and fill premature graves.

The caffeine of coffee and the theine of tea are narcotic poisons which exert a direct influence in elevating the blood-pressure when taken into the system. They are very properly discussed under the head of "Drug Causes," notwithstanding the fact that they are so commonly used as beverages in connection with meals.

Tea and coffee are freely used even by young children with tender nervous systems. We have "tea-drinkers'" disorder, which is a disease recognized by the medical profession; and tea toppers are found among both men and women. This tea and coffee drinking is none the less a case of drug addiction, even though it be taken at mealtime, and notwithstanding the fact that their use has become well-nigh universal. There is used in the United States a billion and a quarter pounds of tea and coffee a year; (1,227,736,620 pounds, last report). This is almost twelve pounds of tea and coffee a year for every man, woman, and child in the country. The United States coffee bill is about \$150,000,000 a year.

2. *Venereal diseases*.—Syphilis, as in the case of chronic lead poisoning, is one of the great causes of early arterial degeneration.

3. *Dietetic errors*—habitual overeating (three square meals a day), overflavoring of food, too highly seasoned food—foods that are "hot" when they are cold. Overeating is especially contributory to these degenerative disorders when it consists in taking too much of the protein foods—lean meats, eggs, cheese, legumes, etc.

It has been shown that the free use of all the condiments

which are commonly used by Americans, with the exception of small amounts of common table salt, nutmeg, and cinnamon, tend to have a harmful effect on the liver, blood vessels and kidneys to say nothing of their deleterious effects upon the digestive system. Those condiments which may in this indirect way increase the blood-pressure are mustard, pepper, vinegar, cayenne, horseradish, and the other pungent seasoning substances. Overseasoning leads to overeating — and overeating is one of the great causes of "Americanitis" — the premature appearance of "old-age" or degenerative disorders.

Common table salt (sodium chlorid) is not by any means an innocent substance when used excessively. Many authorities hold the opinion that the modern "salt habit" — the tendency of so many persons to consume more and more salt on their food as the years go by — has considerable to do with the increase in kidney, heart, and liver disorders. The author shares this belief to a certain extent and thinks it a wise policy to watch one's taste for condiments in general and salt in particular — especially after one gets to be 30 years of age and over. Try to form the habit of eating a little less salt — instead of a little more.

Let us avoid the cultivation of an artificial taste — a false appetite. Better go slowly with encouraging the increased consumption of "foods that taste 'hot' when they are cold."

The American people, in common with their English cousins, consume enormous quantities of the flesh of animals for food. We eat too much meat in this country. All forms of flesh food contain certain irritating substances, such as uric acid and its numerous chemical cousins, which were circulating through the flesh of the animal at the instant of death, and which are swallowed along with the meat, and have the power to raise the blood-pressure considerably (when eaten excessively), by their irritating effect upon the

tender linings of the blood vessels, and their further probable influence upon the nervous system.

The overuse of meat as a daily food is still further objectionable from the standpoint of preventing premature "old-age" disorders because of the fact that lean flesh foods are composed almost wholly of protein — and an excess of protein, both animal and vegetable, is almost universally regarded as one of the causes of this alarming increase in kidney, liver, heart, and vascular disorders which we have under consideration.

Protein represents a food substance very essential to life and health, but also very deleterious to our well-being when eaten in excess. It is not so freely and completely oxidized or burned up in the body as are such food elements as fats, starches, and sugars. When protein is burned up in the body it leaves behind a group of cinders which work the mischief with the liver and kidneys when one overeats of these foods which are so largely protein in composition. The highly protein foods are: lean meats — including fish and fowl — whites of eggs, cheese, the casein of milk, the gluten of breads and cereals, most nuts, together with dried peas, beans, and lentils. These foods are all good — they cause trouble only when we eat too much or too many of them in one day or at the same meal.

Auto-intoxication is probably one of the most common causes of high blood-pressure and the resultant increase in degenerative diseases. When an excess of food is taken into the digestive tract, the machinery of digestion is clogged; fermentation and putrefaction are favored, especially if this excess is largely protein; and as a result, there are generated poisons which raise the blood-pressure and irritate the kidneys. Nervous depression may also predispose to sluggishness of the bowels.

Auto-intoxication means self-poisoning, and refers to spe-

cial poisons, which may be produced in the body, due to derangement of digestion and metabolism, as in the case of intestinal putrefaction. The colon of man is inhabited by untold billions of germs (colon bacilli), and these secrete a toxin or poison, which often has a tendency to raise blood-pressure. The same is true of the toxins of many other disease germs.

Chronic constipation indirectly favors a rise in blood-pressure, in the case of some persons, by allowing large quantities of matter to accumulate in the bowel, thus favoring putrefaction and the retention and subsequent absorption of the poisons commonly originating in this part of the digestive tract.

If you have high blood-pressure or are in any manner threatened with kidney or heart disorders, you should make it a business to have at least two free bowel movements every twenty-four hours. Train yourself to go to stool each morning and evening. This is one of the most important of all the instructions which this chapter may contain.

4. *Deficient elimination.*—Too little physical exercise, failure to get eight glasses of liquid into the system every twenty-four hours; too little sweating—too much of a sedentary life—accompanied by chronic constipation and its resultant auto-intoxication, are all causes of premature old age. On the other hand, exposure and long-continued overwork may contribute to arterial degeneration.

By long-continued exposure of the skin, the blood is driven from the cutaneous vessels (as evidenced by the pallor and goose-flesh appearance). This forcing of the blood upon the internal organs greatly raises the blood-pressure and produces injurious congestion of these involved structures and organs.

Moderate, daily, and well-balanced exercise in the open air is invaluable in the prevention and treatment of this whole group of disorders.

5. *Chronic infections.*—Frequent colds, chronic colds in the head (sinus infection), pyorrhea, ulcerated teeth (almost one-half of old crowns and bridges are found infected on X-ray examination), bad tonsils, adenoids, chronic appendicitis, inflammation of the gall bladder and gall stones, ulcers of the stomach and duodenum; and in the case of women, chronic infection in some of the pelvic organs — in fact any place in the human body where microbes are able to maintain a latent existence and send forth their toxins to produce, first, rheumatism, neuralgia, neuritis, sciatica, valvular heart disease, and then, subsequently, arteriosclerosis and Bright's disease, may prove to be causes of "old-age" disorders. These pus reservoirs have lately come to be known as "focal infections."

You cannot harbor pus in any part of the body over a long period of years without suffering more or less serious consequences. The toxins of these pus microbes are — many of them at least — highly irritating to the delicate membranes which line the heart, liver, kidneys, and blood vessels, and the result of their long-continued action is to set up a degenerative reaction which in and of itself constitutes this group of "old-age" disorders.

6. *The mental attitude.*—A mental state of chronic fear, worry, and definite dread, together with mental unrest, anxiety, fits of bad temper, etc., all contribute to a temporary or permanent rise in blood-pressure, and medical authorities are now inclined to think that not only does this hardening of the arteries raise the blood-pressure, but that the raising of the blood-pressure by mental or emotional means, in time may contribute something to the hardening of the arteries. In many cases, a fairly high blood-pressure is found to be almost entirely due to a nervous or emotional state.

Fear is a definite cause of disease. Worry is a foe to health. Anxiety is a mental poison that in many respects

exerts the same deleterious effect on the body as literal poisons introduced from without. Those who would avoid high blood-pressure must avoid worry and anxious care.

Disappointment, cankering care and corroding grief, all act their part in producing that condition of the nervous system which results in raising the blood-pressure. It is a well-known fact that victims of high blood-pressure often burst a blood vessel during a fit of anger. Numbers of people have met death in this way. This is due to the fact that anger and other intense emotions have power, through the nervous system, quickly to raise the blood-pressure. Eye-strain is also a common cause of high blood-pressure.

Undue excitement directly raises the blood-pressure and is probably one of the most common causes of high blood-pressure, outside of dietetic habits. Modern society exists in a state of more or less constant tension. Almost every form of modern amusement is constructed with a view to thrilling, startling, and exciting the spectator; and all this reacts upon the nervous system in disturbing the blood-pressure. The inordinate craving to be hurled through space at increasingly perilous speed is likewise both a cause and a result of the modern high-pressure régime.

Gambling and other games of chance also play their part. These various engagements of chance all interfere with the blood-pressure by means of worry, excitement, and sometimes the crushing disappointment and bitter remorse that must inevitably follow in the defeat that comes to all who risk their substance on the wheel of fortune.

The strenuous life is that combination of modern methods of living which is the typical régime of modern money-makers, and the strenuous life usually raises the blood-pressure.

Among the moral causes of high blood-pressure should be mentioned an accusing conscience — moral condemnation.

This condition, in which one has lost peace of mind, indirectly contributes to a rise in blood-pressure. The one who is not at peace with God and man cannot so easily maintain that state of mind and thought requisite to normal blood-pressure. Condemnation of conscience brings in its wake all those high-pressure-breeding influences of worry, anxiety, sorrow, remorse, etc.

7. *Heredity*.—Again attention must be called to the fact that certain families tend to grow old early. They are, by inheritance, constitutionally inferior to their fellows. They possess a low degree of resistance to disease in general and thus, through hereditary predisposition, they more readily succumb to all of the influences and agencies which conspire to bring on premature old age.

While the individual's personal habits of living, and the microbic diseases to which he may—accidentally or incidentally—have been subjected, all have a great influence in the premature production of “old-age” disorders, nevertheless, the fact remains, that certain individuals and families possess this inherent tendency or weakness to grow old prematurely. So it would appear, in our efforts to lengthen life and to combat “old-age” disorders, that we must indirectly reckon with the fact that inherited vitality is a factor which must be recognized. And the statistics we are compiling, which show such a startling increase in “old-age” disorders and in the death-rate from these degenerative diseases, suggest the fact that our degenerative and defective stocks are possibly increasing much faster than our more substantial, wholesome, and long-lived strains. In other words, the startling increase in the death-rate from “old-age” disorders, in recent decades, may not be entirely due to bad methods of living—deleterious hygienic practices—but may also be due to the fact that we are having born, in each generation, a greater number of persons belonging to those defective human

strains which are, by inheritance, predisposed early to succumb to these degenerative diseases.*

This, then, is the story of the chief causes of the degenerative diseases and constitutes the explanation of their great increase in modern times. Let us now turn our attention to some of the remedies for this recent increase in heart and kidney troubles.

SUMMARY OF THE CHAPTER

1. Among the chief causes of premature "old-age" disorders are such drugs as alcohol, tobacco, patent medicines, headache powders, and the excessive use of tea and coffee.

2. A single cigar will raise the blood-pressure for an hour or more in many individuals.

3. Tobacco has a further influence on the digestive organs and the nervous system in addition to its effect on blood-pressure.

4. The cigars used each year in this country, laid end to end, would reach halfway to the moon.

5. The American people spend more money each year for tobacco than for bread.

6. Last year we smoked over 46,000,000,000 manufactured cigarettes — to say nothing of the home-made article.

7. During the last ten years there has been an increase of 40,000,000,000 cigarettes. Laid end to end, the cigarettes used each year would reach around the world thirty times.

8. For every person in the United States there is consumed each day 356 grains of alcohol, 6 grains of nicotine, 6 grains of caffeine, 1.5 grains of opium. A total of nearly 364 grains of narcotics.

9. There was used in this country 1,227,736,620 pounds of tea and coffee last year; twelve pounds for every man, woman and child. The United States coffee bill is \$150,000,000 a year.

10. The poisons of syphilis, together with chronic lead poisoning, are among the prominent causes of premature "old-age" diseases.

11. Habitual overeating — three square meals a day —

together with overseasoning of foods, lies at the bottom of many early deaths from high-pressure disorders.

12. We eat too many condiments. Beware of foods that are "hot" when they are cold.

13. Americans eat too much meat and too little fruit. Many have the "salt habit" —, so harmful to the kidneys.

14. Excess of protein (meat) works a particular hardship on the liver and kidneys and tends to raise blood-pressure.

15. Auto-intoxication is among the common causes of high blood-pressure; and is in turn so often due to chronic constipation.

16. In case of deficient elimination and high blood-pressure, drink plenty of water, sweat often, and secure two bowel movements each day.

17. Moderate, well-balanced exercise in the open air is invaluable in the management of these "habit disorders."

18. Premature "old-age" diseases and death are also caused by the poisons (toxins) of such chronic infections as colds in the head, pyorrhea, ulcerated teeth, diseased tonsils, chronic appendicitis, gall-bladder disease, etc.

19. All pus reservoirs (focal infections) cause first, rheumatism and neuritis, then heart disease, hardening of the arteries, Bright's disease, etc.

20. Chronic worry and anxiety cause high blood-pressure and premature old age. Fear is a definite cause of disease.

21. Excitement, anger, and "cankering care" all contribute to high blood-pressure and premature old age.

22. An accusing conscience also adds to the sum of all those influences which may so affect the nervous system as to raise blood-pressure and contribute to early decay.

23. Some individuals are predisposed to early affliction of degenerative diseases by heredity.

CHAPTER XII

TREATMENT OF "OLD-AGE" DISORDERS

HAVING carefully considered the causes of "old-age" disorders in the preceding chapter, it will now be in order to discuss the remedies. Of course, the first of all remedies for any human disease is *prevention* — and the next most important thing is the removal of all exciting and predisposing causes which may be operating to produce the disorder we wish to combat.

What, then, is to be done about this alarming increase in degenerative diseases? There are just four answers to this great question:

1. Reformation in habits of personal living, in our methods of eating, drinking, sleeping, working, etc. Attention must be given to both the hygienic and industrial sides.

2. Chronic or focal infections must be prevented. Teeth, tonsils, and internal organs must not be allowed to assume the rôle of little toxin boxes which are able so effectually to undermine the constitutional health.

3. Thoroughgoing, exhaustive, and periodical research examinations, or "health audits" must become part of our national life in order to detect the early beginnings of these "old-age" disorders.

4. We must give proper consideration to the eugenic aspects of the question.

REMEDIES

In the early stages of degenerative disorders it comes to be — as regards treatment — largely a question of the man-

agement of high blood-pressure. A high pressure accompanies and is indicative of most of these troublesome ailments. In fact, it long precedes many of these kidney disorders of the more serious sort. In the case of a failing heart, the blood-pressure may fall,—though it was undoubtedly above normal at some time previous.

The most helpful methods of combating high blood-pressure in particular and the accompanying “old-age” disorders in general, may be summarized as follows:

I. Exercise.—Active physical exercise, to the point of gentle perspiration, brings a large amount of blood to the muscles. It dilates the vessels of the skin, producing a ruddy glow, the same as does the use of alcohol, only this dilation is even more permanent and is not followed by an undesirable reaction. Walking, riding, rowing, running, swimming, gymnasium work, and all forms of exercise, preferably those in the open air, with the clothing loose and free, are all most powerful agents in lowering blood-pressure, and should be intelligently and systematically utilized by all moderately high-pressure victims. (See Fig. 11.) Passive exercise always lowers the blood-pressure and from the very beginning. If you have high pressure consult with your physician regarding the proper exercise for your case.

II. Massage and skin friction.—In the case of feeble patients—bedridden patients who cannot stand vigorous exercise, and those who have weak hearts or hardened arteries (which condition makes it unsafe for them to take the more vigorous exercises and baths)—massage and skin friction are useful.

The cold-mitten friction, in which a rough mohair mitt or Turkish cloth is dipped in ice water and rubbed over one part of the body at a time, is excellent for these cases. Dry friction is also useful.

Deep massage of the muscles enormously increases the

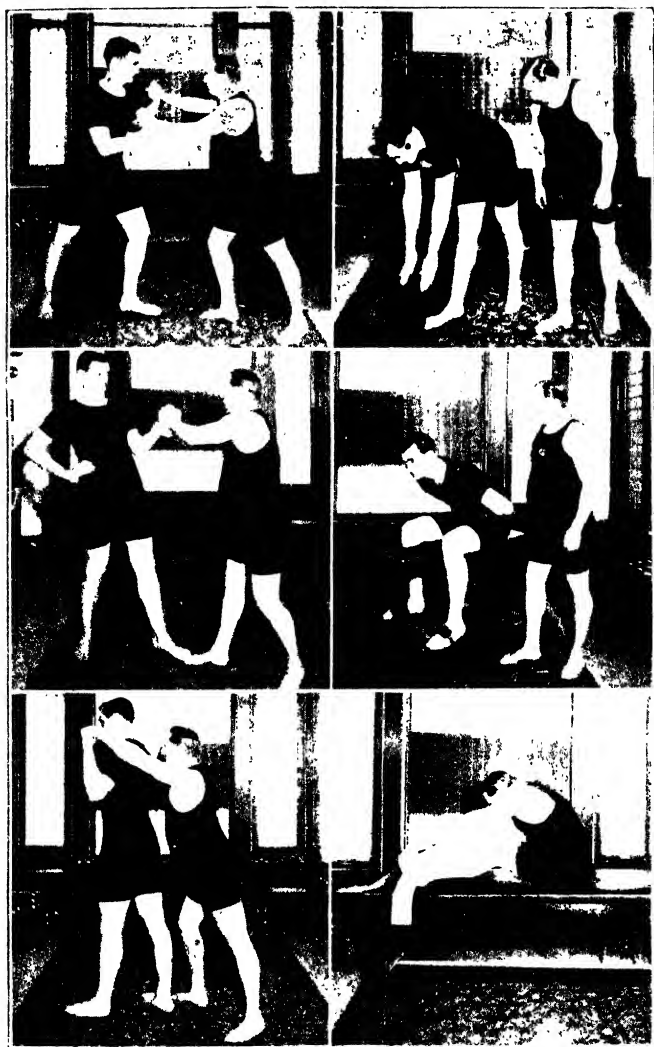


Fig. 11. Exercises adapted to moderately high blood-pressure

amount of blood circulating through them, and in this way relieves the general arterial tension.

III. The neutral or tepid bath.—This bath lowers the blood-pressure by dilating the vessels of the skin and quieting the heart. Try it sometime when you are restless, nervous, fretful, can't sleep, head throbbing—take a neutral bath, from 97° to 100° F. Stay in the bathtub anywhere from fifteen to forty-five minutes. Oxygen baths are also very beneficial in many cases of high pressure.

IV. The cold bath.—The cold bath, likewise, by the vigorous reaction that follows it, lowers the blood-pressure. Warm baths must be continued for a number of minutes in order to lower the blood-pressure, and the neutral bath from fifteen to about thirty minutes, but cold baths must be *short*, in order to lower the blood-pressure. The salt bath or salt glow is doubly useful.

V. The sun bath.—The sun bath is of great value in relieving high pressure, if properly taken, as it not only diverts blood to the skin, but the "sunburn" is a sort of physiological inflammation that causes the blood to circulate freely in the skin for days following exposure to the sun's rays. Keep the head cool—protected from the sun. Keeping the skin warm always helps in lowering blood-pressure. Always keep the feet warm—summer and winter.

VI. Sleep and rest—by their every influence, directly and indirectly, tend to lower the blood-pressure. It is very apparent that a kind Providence has provided the suffering race with many useful and inexpensive means for lowering the blood-pressure. Why should we resort to the unnatural agencies of harmful, habit-producing drugs in order to relieve the high-pressure tension and the nervous restlessness of the age? Let us reform the diet, set the mind at rest, eliminate all high-pressure causes, get the sweet peace that comes from religious consolation; and then, in times of tem-

porary high pressure and unpleasant tension, resort to the simple baths, exercise, sun baths, massage, etc., for relief.

VII. Mental factors — in lowering pressure are cheerfulness and contentment. We need not repeat here what already has been stated concerning the health-producing possibilities of happiness. Mental cheerfulness is essential to good digestion. It promotes the circulation of the blood by its influence over the vasomotor nerves, and thus indirectly influences the blood-pressure. Mental peace is a powerful anti-high-pressure influence.

Self-control has been defined as temperance, and temperance is the keynote of success in controlling blood-pressure. Regular and even habits of life favor normal pressure. "A conscience void of offense toward God and man," by its beneficent influence upon the mind — effectually eliminating all grounds for worry, remorse, and anxiety — tends to promote and maintain a normal blood-pressure.

Moral faith and spiritual trust are the climax of power in the psychic battle against the high-pressure life. Faith and trust are the guardian angels of the simple life; they are the ancestors of every mental trait of happiness and self-control, all of which are valuable in preventing increased blood-pressure.

VIII. Dietetic simplicity.— Discard fiery spices and condiments. In the battle against high blood-pressure and degenerative diseases it is necessary that all irritating condiments and spices should be cast out of the dietary. Vinegar has been found to be almost as powerful in producing hardening of the arteries in the liver of a guinea-pig as alcohol.

Vegetables, grains, fruits, and nuts do not contain substances which excite high pressure unless such foods as nuts and legumes are taken in too large quantities. The less meat eaten the better for the victim of high blood-pressure.

Good, normal digestion, in which food is not allowed to

remain too long in any one part of the digestive tract, contributes to keeping the blood-pressure normal by preventing the generation of high-pressure toxins as a result of indigestion.

Regular bowel movements (at least twice a day) prevent the absorption of intestinal toxins, which have a tendency to raise blood-pressure.

While there is a great difference of opinion regarding the value of dieting in these cases of Bright's disease and high blood-pressure we believe that a proper regulation of the diet is highly important and, in most cases, very helpful in the treatment of this class of patients.

We are in the habit of giving our patients with kidney disorders the following general dietetic instructions:

SPECIAL DIET LIST FOR KIDNEY DISORDERS

(LOW PROTEIN AND SALT-FREE DIETS)

This diet is indicated in all forms of kidney disorder — Bright's disease, acute nephritis, chronic interstitial nephritis, arteriosclerosis, high blood-pressure, heart disease, etc. This low protein diet is also valuable in nervous sick headache (migraine), acidemia, rheumatism, neuralgia, neuritis, and auto-intoxication.

1. *Fruits:* Ripe olives, grapefruit, lemons, oranges, cranberries, strawberries, blackberries, raspberries, gooseberries, blueberries, huckleberries, pineapples, watermelons, peaches, apples, pears, apricots, cherries, currants, plums, prunes, bananas, grapes, cantaloupes, dates, figs, raisins, dried fruits, and fruit juices.

2. *Vegetables:* Lettuce, cucumbers, spinach, asparagus, rhubarb, sorrel, greens, cabbage, sauerkraut, celery, tomatoes, Brussels sprouts, water cress, okra, cauliflower, eggplant,

radishes, string beans, turnips, beets, carrots, onions, squash, pumpkin, mushrooms, artichokes, parsnips, green peas, potatoes, sweet potatoes, green corn, oyster plant, and vegetable soups.

3. *Nuts*: Chestnuts, cocoanuts, and pecans.

4. *Dairy products*: Butter, milk, cream, buttermilk, and yolks of eggs.

5. *Cereals*: Arrowroot, breads (limited amount), cornstarch, cornmeal products, corn flakes, macaroni, oatmeal, rice, sago, tapioca, and Zwieback. Bread should be eaten sparingly.

6. *Meats*: Bacon and oysters, other meats only in accordance with physician's orders. The legumes — dried peas, beans, lentils, and peanuts are to be regarded the same as meat — i. e., eaten only as ordered.

7. *Special foods to avoid*: Lean meats, fish, poultry, meat broths, all rich, highly seasoned food, such as gravies, dressings, pastries, etc., including common salt and condiments, tea, coffee, shell fish, cheese, and whites of eggs. Avoid all foods containing much salt.

8. *Salt-free diet*: In acute or severe kidney trouble, a salt-free diet (or nearly so) can be had by subsisting on the following:

- a. Cereals — cooked without salt.
- b. Fresh fruits — raw, or cooked without salt.
- c. Fresh vegetables — raw, or cooked without salt.
- d. Eggs — raw, or cooked without salt.
- e. Milk, cream, buttermilk, and butter made without salt.

9. *Milk diet*: When milk diet is ordered for Bright's disease, it is given by special instructions, in accordance with the general régime as outlined in connection with the "Special Milk Diet." (See Appendix C.)

10. *Water drinking:* The amount of water which should be taken each day depends on the stage of the kidney disorder, the amount of urine passed, sweating, the presence of edema, dropsy, etc., and should be prescribed for each individual case. Carbonated waters are good, but most mineral waters are of little or no value, aside from their laxative properties.

11. *Drugs:* In following a diet for kidney disorders, refrain from taking any drugs or medicines not prescribed by your doctor. Avoid the use of all forms of alcohol and tobacco.

12. *Acid and alkaline foods:* It is desirable to combat acidity of the blood-stream in Bright's disease, and as an aid in this direction alkalies are sometimes prescribed for temporary benefit; but the best method of attaining this end is to eat more largely of the "alkaline" than of the "acid" foods — see following list of "Acid and Alkaline Foods."

With the possible exception of fats and sugars, practically every article of one's diet contributes either directly or indirectly to acidifying or alkalinizing the blood. In order to enable the patient more fully to understand this important principle of scientific dietetics, we have arranged the following table of parallel comparisons, which will show at a glance what will be the final digestive outcome of the various foods — as regards the acidity and alkalinity of the blood-stream.

Space will not permit the listing of a great number of individual foods, but the general classes noted will enable the patient easily to ascertain to what group any commonly used food belongs, and so be able to arrange his diet accordingly.

List of foods showing the end-products of digestion increasing or decreasing the acidity and alkalinity of the blood. (Fats and sugars are practically negative and are therefore not included in this classification.)

FOODS WHICH TEND TO ACIDIFY THE BLOOD

1. **Animal foods:** All forms of flesh foods, fish, fowl, etc., including all kinds of meat broths, soups, beef tea, bouillon, etc.

2. **Eggs.**

3. **Breadstuffs:** All kinds of breads, whether made of wheat, rye, or corn, crackers, toasts, griddle cakes, etc.

4. **Pastries:** All sorts of pies and cakes (except fruit pies, and other desserts containing milk or sour fruits).

5. **Cereals:** Rice, oatmeal, and breakfast foods of all kinds, including the flaked and toasted breakfast foods.

6. **Miscellaneous:** Peanuts, plums, prunes, and cranberries. (Plums and cranberries come under this heading because of their benzoic acid, which the body cannot fully oxidize.)

FOODS WHICH TEND TO ALKALINIZE THE BLOOD

1. **Dairy products:** Milk, ice cream, cottage cheese, cheese, buttermilk, etc.

2. **Soups:** All forms of vegetable and fruit soups and broths.

3. **Fruit juices:** All the fresh fruit juices (except plums).

4. **Fresh fruits:** All fresh fruits — sweet and sour — (except plums and cranberries).

5. **Dried fruits:** All dried fruits (except prunes) — especially figs, raisins, dates, and currants.

6. **Vegetables:** All kinds — especially beets, carrots, celery, and lettuce.

7. **The legumes:** Beans, peas, and lentils.

8. **Nuts:** All the nuts come under this heading, including almonds and chestnuts.

9. **Miscellaneous:** Potatoes and bananas.

For special diets adapted to combating auto-intoxication and chronic constipation, the reader is referred to Appendix C.

The milk diet: In other cases of high blood-pressure and associated kidney disorders, it is best to put the patient to bed on a diet of milk alone — or milk in combination with fruit juices. From two to six weeks of this "rest cure" is often of great value. For details of the milk diet see Appendix C.

IX. Disease toxins.—If you have syphilis — treat it — and treat it thoroughly and scientifically. When you think you are cured, follow up the matter with Wassermann tests once or twice a year for at least five years. Take no chances with this — the most frequent single cause of the degenerative diseases.

X-ray your teeth — all of them — at least all dead teeth. X-ray your gall bladder if you suspect it, or if you have ever had typhoid fever.

Don't go through life with chronic sore throat, colds in the head, chronic appendicitis — or any other chronic infection which harbors pus germs at any place in the body. If in doubt — go to the bottom of your complaint — get at the facts and then *act*. Employ the best dentists and the most up-to-date doctors at your disposal and wipe out these "little foxes" which are at the bottom of so much of our present-day premature old age.

HIGH AND LOW BLOOD-PRESSURE

In order that the reader may become familiar with the subject of blood-pressure the following hints regarding both high and low pressure are given:

1. *Normal blood-pressure.*—The normal blood-pressure for men at 20 years is 120 mm. of mercury. The normal pressure for women at 20 years is about 110 mm. The lowest normal limits are 95 for women and 105 for men.

2. *Normal range of pressure.*— There is a normal variation in blood-pressure of about 30 points (mm.) that is, the pressure may run 15 points above or 15 points below the average normal for any given age without being considered abnormal. Therefore, at 20 years of age a man's pressure might range from 105 up to 135 without suggesting disease, while a woman's pressure, at the same age, might run from 95 to 125 mm. The author believes that "average" pressure is a trifle higher than "normal" pressure.

3. *Blood-pressure in relation to age.*— The blood-pressure rises 1 mm. (1 point) for every 2 years' increase in age. Women at any given age exhibit a pressure about 10 points below that of men of the same age. High pressure becomes dangerous when it reaches 185 or 190. Blood-pressure usually falls a trifle after 90 years of age. It should be remembered that one-third of all cases of arteriosclerosis exhibit a normal blood-pressure.

4. *Normal diastolic pressure.*— In many respects the diastolic pressure is of more importance than the systolic. The diastolic pressure should normally run about two-thirds (70 per cent) as high as the systolic. (When the normal individual is at rest, it may run as high as 75 or even 80 per cent of the systolic pressure.) At 20 years of age the normal diastolic pressure runs about 80 mm. for men and about 75 mm. for women. The range of safety for the diastolic blood-pressure — for both men and women — runs 70 to 90 mm. A diastolic much below 70 mm. demands attention; while a continued diastolic pressure of 95 mm. or above must be regarded seriously.

5. *Normal pulse pressure.*— The difference between the systolic, or heart-working pressure, and the diastolic, or heart-resting pressure, is called the pulse pressure and normally equals about one-third or 30 per cent of the systolic pressure. In healthy individuals 20 years of age the pulse pressure may

vary from 35 mm. up to 45 mm. These so-called normal variations are increased in the case of older people.

6. *The mean pressure.*—The patient's actual mean blood-pressure is by no means always the exact arithmetical mean between the systolic and diastolic pressure. The actual mean pressure usually more closely follows the diastolic pressure. As a general rule the mean pressure can be quite accurately estimated by adding about one-third of the pulse pressure to the diastolic pressure. The normal limits of mean pressure at 20 years of age, range from 85 mm. up to 110 or sometimes even 115 mm.

7. *Normal variations.*—The following influences and conditions are able to produce variations in blood-pressure which must be regarded as entirely normal: age, sex, size, obesity, temperament, time of day, digestion, muscularity, exercise, fatigue, posture, rest, sleep, excitement, nervousness, fear, and barometric pressure.

8. *Nervous hypertension.*—The high pressure of fear, worry, and nervousness can sometimes be almost instantly relieved by psychotherapy. In this form of high tension the increased pressure is chiefly systolic, as the mind seems to be able to exert little or no influence over the diastolic pressure.

The mind no doubt influences blood-pressure both by direct nervous action on the caliber of the small blood vessels, and by indirect chemical action by means of its influence in controlling or modifying the output of the so-called ductless glands. We know that low pressure is the usual accompaniment of nervous exhaustion, although chronic worry or melancholy is more often associated with high blood-pressure. High blood-pressure is almost invariably associated with excitement and intense anger.

The following parallel arrangement of high and low blood-pressure causes serves to indicate how many and varied are the factors which may influence blood-pressure.

HIGH-PRESSURE STATES	LOW-PRESSURE STATES
ARTERIOSCLEROSIS	WASTING DISEASES
ANGINA PECTORIS	ANEMIAS
VAL. HEART DISEASE	CHLOROSIS
MYOCARDITIS	TUBERCULOSIS
APOPLEXY	(early, of the lung)
PARALYSIS	THYROID DISEASE
BRIGHT'S DISEASE	ADDISON'S DISEASE
ALCOHOL	DIABETES
TOBACCO	PROSTATIC DISEASE
TEA AND COFFEE	TYPHOID FEVER
LEAD POISONING	ERUPTIVE FEVERS
OVEREATING	PNEUMONIA
OVERSEASONING	(after second day)
MEAT DIET	CHOLERA
CONSTIPATION	TOXEMIAS (some)
AUTO-INTOXICATION	TOBACCO HEART
TOXEMIAS	TOBACCO (excessive)
MIGRAINE	DELIRIUM TREMENS
PREGNANCY	ALCOHOL (immediate)
UREMIA	POOR CIRCULATION
ACUTE INFECTIONS	CARDIAC DILATATION
HEAD INFECTIONS	CARDIAC ASTHMA
THROAT INFECTIONS	HEMORRHIAGE
GALL-BLADDER INFECTIONS	SHOCK — COLLAPSE
PELVIC INFECTIONS	HEART FAILURE
CHRONIC INFECTIONS	CONSTIPATION
SYPHILIS	(in certain cases)
TABES DORSALIS	DIARRHŒA
EXOPHT. GOITER	JAUNDICE (sometimes)
GLAUCOMA	PHOSPHATURIA
EMPHYSEMA	NEURASTHENIA
EXPOSURE	HYSTERIA (sometimes)
OVERWORK	PARESIS
CHRONIC PAIN	EPILEPTIC COMA, NEURITIS, SCI-
LOSS OF SLEEP	ATICA, LUMBAGO, ARTHRITIS
STRENUOUS LIVING	and MYALGIA (when the acid-
WORRY — FEAR	ity is low)
NERVOUSNESS	
ANXIETY — ANGER	

Blood-pressure is not a constant symptom. Owing to varying nervous and chemical states of the body, a given disease may produce an entirely different blood-pressure reaction in different individuals.

FALSE AND HARMFUL METHODS OF LOWERING BLOOD-PRESSURE

Having carefully considered the causes of high blood-pressure, together with natural and proper methods of controlling and lowering pressure, we will now briefly discuss those false and dangerous practices and habits which tend to lower the pressure. These methods are transitory, deceptive, and exceedingly destructive; they represent the false hope of obtaining relief from the tension of the high-pressure life.

While there are many drugs used temporarily by physicians for their influence in lowering blood-pressure, we will consider here only those which are administered by thousands of people to themselves.

1. *Morphine* — lowers the blood-pressure; so, when the individual has used cocaine, which results in unduly raising the pressure, it is only natural that he should seek relief from this tension by the use of either alcohol or morphine. This is also why alcohol and tobacco go hand in hand, tobacco producing a high pressure, alcohol relieving the tension by temporarily producing a low pressure; but a low pressure cannot be long tolerated — the individual must have something to tone him up, to restore the pressure, and this is secured by more tobacco. Likewise, morphine and cocaine play into each other's hands — the one temporarily counteracting the effects of the other, until the unfortunate victim is a user of both. All methods of relieving high pressure by drugs are a snare and a delusion.

2. *Alcohol* — lowers the blood-pressure — for the time being. Just as tobacco produces a pale skin and drives the blood inside, thus raising the pressure, alcohol produces a red flush of the skin, showing that the blood is being drawn to the skin, and the blood-pressure lowered. This is why one feels warm under the influence of alcohol, even when he is colder, or even freezing.

Now we begin to understand the vicious circle which has been perpetrated on the human race. A large part of the people use tobacco. They are all living the strenuous life. Their dietetic and general living habits are those belonging to the strenuous order. They use large quantities of condiments, tea, and coffee. But this cannot be kept up indefinitely. Several times a day, a week, or a month, the nervous individual reaches the "bursting stage." He feels wrought up to the highest pitch; keyed up to the last notch. He is intensified to the highest degree. He must in some way find a safety valve.

There must be some way to relieve this constantly increasing pressure and the patient finds temporary relief by taking alcohol, which not only dilates the blood vessels of the skin, relieving the blood-pressure, but also benumbs the higher sensibilities so that they are not susceptible to the fears, worries, anxieties, griefs, and disappointments that were previously harassing the mind. In this way, alcohol affords a welcome temporary relief to the distracted nerves of the restless victims of the high-pressure life. But this method of relieving high tension is wholly false, for one of the after-effects of alcohol is the hardening of the arteries; so that in the end alcohol only serves to raise the pressure and make matters worse.

3. *The bromids, headache powders, etc.*—Hand in hand with the enormous consumption of tea and coffee, there is found the steadily increasing use of the various quieting preparations and combinations of the bromids.

Tea and coffee raise the blood-pressure—the bromids and their compounds, as a general rule, by their sedative action, lower the blood-pressure; and so, just as alcohol and tobacco play their victim into each other's hands, the heavy and habitual users of tea and coffee find deceptive relief in the use of bromids, coal-tar preparations, aspirin, etc.

We cannot look to drugs for our help in dealing with high blood-pressure and "old-age" disorders. We must work for prevention by enlightenment; for the early detection of these degenerative disorders by means of periodic medical and dental examinations; and then apply the best-known scientific methods to the treatment and cure of the disorder if it has already overtaken us.

SUMMARY OF THE CHAPTER

1. Of all possible remedies, none can compare with *prevention*. In the prevention of premature deaths from "old-age" disorders, three things are necessary:

- a. Reformation in personal habits of living.
- b. The removal of all focal infections.
- c. Thoroughgoing periodical or annual medical examination.

2. High blood-pressure accompanies and is indicative of most of these troublesome ailments.

3. One of the best methods of combating the early stages of high pressure is to be found in various forms of outdoor physical exercise.

4. Massage and other forms of passive exercises are also helpful in dealing with most cases of high tension.

5. Neutral baths and cold friction are helpful in lowering blood-pressure as also are *short* cold baths.

6. The sun bath is one of the best remedies for high blood-pressure, if the head is properly protected.

7. Sleep, rest, and relaxation are invaluable in overcoming nervous tension and high pressure.

8. Cheerfulness and religious trust are influential in the treatment of the nervous element in the causation of these high-pressure disorders.

9. Faith is a real remedy. Good cheer is a powerful medicine. Confidence is the climax of power in the psychic battle against the high-pressure life.

10. Good digestion, dietetic simplicity, and simple, normal habits of living are essential to a natural and long life.

11. The general diet of kidney disorders and high arterial tension includes: fruits, vegetables, dairy products, cereals, with but a small amount of meats, nuts, and all highly seasoned foods.

12. Water should be taken freely except in serious kidney involvement. In many cases it is best to live on milk for a number of weeks.

13. Study to avoid eating too many acid-forming foods. Arrange the diet so that the alkaline ash-forming foods predominate.

14. If you have syphilis treat it thoroughly, and keep at it until you are pronounced cured.

15. X-ray all the teeth and any other part of the body in which the presence of pus is suspected.

16. Search out and remove every possible "little fox," which might exert an influence towards hardening the arteries and raising the blood-pressure.

17. Familiarize yourself regarding normal blood-pressure and the possible causes for high tension and conscientiously avoid those things which cause premature old age and death.

18. There are a vast number of disorders and states which affect blood-pressure, some raising, and others lowering it.

19. There are numerous harmful methods of lowering blood-pressure such as: morphine, alcohol, bromids, coal-tar products, etc.

CHAPTER XIII

THE LAWS OF HEALTH IN A NUTSHELL

I. GENERAL PRINCIPLES OF HYGIENE

1. "Whatsoever a man soweth, that shall he also reap," is just as true of the body as it is of the soul.

2. Science is rapidly achieving the conquest of all "germ diseases," while the "habit diseases," due to personal habits and practices, are alarmingly on the increase.

3. Nature alone can cure disease. Doctors cannot heal. They can only direct the sufferer back to the pathways of health. Nature alone can create, and healing is re-creation.

4. Sensations of fatigue and pain are friendly voices of warning. They are the body's conscience. We should heed their messages and not silence their prayer by stimulants, narcotics, and pain killers.

5. We enjoy health when the body works under natural and normal conditions. The same laws of life produce disease when the body is compelled to do its work under unnatural and abnormal conditions.

6. It should be remembered that the human body is a great commonwealth. These tiny little creatures called cells, estimated to number more than 26,000,000,000,000, are dependent upon man's common sense and judgment for their life and health.

7. Unperverted instincts and natural appetites would prove to be safe and unerring guides in choosing the way of life, but the civilized man, through physical disobedience and artificial living, has grossly perverted his natural instincts — largely lost his "horse sense."

8. Some persons have inherited such vast riches of physical wealth that they are able to live a long time as hygienic spendthrifts, with but little personal suffering. The result of their careless living usually appears, however, later in life; or, when they are called upon to pass through some crisis due to accident, infection, etc.

II. SUNLIGHT AND FRESH AIR

1. Sunshine is essential to human life and health. The daily sun bath, properly taken, would restore many semi-invalids back to health.

2. Sunshine is the best-known disinfectant. It should be freely admitted to every human dwelling place.

3. Our dwellings should be full of windows. The house should be daily flushed with light and sterilized with sunshine.

4. It is a crime against the rising generation to have the nursery anywhere except on the sunny side of the house.

5. The direct rays of sunlight are almost instantaneously fatal to tuberculosis germs and the vast majority of other disease microbes.

6. The vital resistance of the human body is greatly influenced by the number of hours one spends each day in the sunshine or the open air.

7. Man is an outdoor animal. He was made to live in a garden, not a house. Remember that each person requires one cubic foot of fresh air every second.

8. Remember that sleeping outdoors is a preventive, as well as a cure, for tuberculosis; and that foul air is the curse of many of our modern manufacturing establishments and workshops; not to mention churches, schools, audience rooms, and other public buildings.

9. Don't allow the temperature of living rooms, during

the winter season, to go above 68° F. See to it that the air is properly humidified. Moisture is just as essential as purity.

10. The vital resistance of an individual, a family, or a race of people, is in exact inverse ratio to the number of years they have been away from the soil.

11. If your home has no system of ventilation, open wide the windows and doors several times a day and enjoy the blessings of a thoroughgoing air flushing.

12. Oxygen is the vital fire of life. Our food, however well digested and assimilated, is just as useless to the body without oxygen, as coal is to the furnace without air.

13. Consumption (tuberculosis), pneumonia, bronchitis, pleurisy, and catarrh are house diseases. Neither man nor any other animal contracts these diseases when living altogether out-of-doors.

III. DEEP BREATHING

1. Deep breathing promotes brain circulation, increases mental activity, favors healthy liver action, and aids digestion. Oxygen is nature's tonic.

2. Natural breathing, like that of the infant, results in expansion of both the chest and the abdomen. A flat chest indicates weak lungs and decreased physical efficiency.

3. Deep breathing empties the portal vessels of the abdomen, the congestion of which is the chief cause of the "blues." Mouth breathing is either a cause or result of disease.

4. Despondent people are nearly always shallow breathers. Bad breathing and worry go together. Getting rid of one usually helps in overcoming the other.

5. Shallow breathing beclouds the mind by causing a retention of blood poisons, thereby placing heavy and unnecessary burdens upon the moral nature.

6. Oxygen is so indispensable to life, that while we can live by eating only two or three times a day, we are compelled to take "air lunches" twenty times a minute.

7. The lungs are nature's blood purifiers. In the place of taking patent medicines, eat good food, drink pure water, ventilate the house, go 'outdoors, and breathe deeply.

8. Remember that it is just as important to have fresh air at night and proper ventilation in the winter, as at other times. Night air is just as pure or a little more so, than day air.

9. Natural breathing is both a preventive and a cure for many forms of constipation, as the diaphragm exerts a downward pressure on the stomach and bowels of about two hundred pounds.

10. The blood is purified and its circulation quickened by deep breathing. The blood is the vital stream that turns the wheels of life, and should contain more, by weight, of oxygen than it does of digested food.

11. Use the diaphragm for breathing. Don't breathe merely with the top of the chest like a woman wearing a tight corset. Let the diaphragm move up and down so as thoroughly to ventilate the bottom of the lungs.

12. The value of the outdoor life is entirely dependent upon the intake of oxygen. It does no more good to go outdoors without exercise and deep breathing than it would when hungry to go to the dining-room table and refuse to eat.

IV. PHYSICAL EXERCISE

1. Body work is indispensable to first-class brain work. A daily sweat is valuable health practice. Exercise is better for the health if it is regular, useful, pleasant, and agreeable.

2. Systematic physical exercise is absolutely essential to

good circulation, sound digestion, and regular bowel movement.

3. Man is a working machine. The study of anatomy suggests that he was never made to sit down. When tired out the body is best rested by lying down.

4. Indian clubs, Delsarte, etc., are good exercises for young girls, semi-invalids, and for the cultivation of grace. Exercise should be systematic, not excessive. Do not begin what you cannot keep up.

5. You owe it to yourself to learn how to stand, sit, and walk properly, and how to climb stairs in a healthful way.

6. Physical exercise destroys body poisons and thus directly favors mental activity and indirectly lessens the moral struggle.

7. Going up and down stairs one hundred and fifty times a day is equivalent to walking six miles, and is good exercise if properly performed.

8. The ideal exercise is walking outdoors, five or six miles a day, the arms swinging freely while every muscle is vigorously energized.

9. In exercising for health, it is the heavy movements that count. Self-resistive exercises are excellent, as you are working against your own muscles and not against dead weight.

V. HEALTHFUL CLOTHING

1. Hats and other head-dress should be light and airy, while thin-soled shoes are dangerous in damp and cold weather.

2. Avoid water-proof clothing and water-proof shoes as far as possible. For outer garments, wool is the best for winter, while cotton serves best in summer.

3. In winter, clothe the extremities well. The primary purposes of clothing are those of protection and modesty, not adornment and display.

4. The best material for underclothing is linen mesh with cotton next. Wool is undesirable for underclothing.

5. The most comfortable summer clothes are those of light color and loose weave, with a very thin dark lining.

6. During the winter, look out for overclothing the body. Use furs with discretion. Clothe the body evenly and symmetrically.

7. Clothing should be physiologic and anatomic — that is, the clothes should be made to fit the body and not the body to fit the clothes.

8. The unhealthy corsets worn by women and the tight belts by men, interfere with natural and normal breathing and weaken the abdominal muscles, thus predisposing to constipation and other disorders.

VI. THE ART OF EATING

1. Avoid extremes of temperature in eating and drinking. Eat some fresh, raw food daily, such as fruits, vegetables, nuts, or dried fruits.

2. Thorough mastication — all things being equal — is one of the great secrets of good digestion. The best of foods are injurious when overeaten, and the prompt elimination of the waste products of the body is equally important with good digestion.

3. For the sake of the teeth as well as the digestion, eat more hard foods. Eat pure, wholesome, unadulterated foods. Hard foods are also good for improving the circulation of the gums.

4. The more simple one's diet, the less the craving of the nervous system for unnatural foods and harmful stimulants. Avoid excess of both sugar and salt.

5. It is quite impossible to have peace in the head and war in the stomach. Coarse eating and fine thinking are incompatible.

6. Tea and coffee are stimulants, they are not foods. Their only nourishing property is the sugar and milk added.

7. Remember that overeating of protein produces far more serious results in the body than does the overeating of other food elements.

8. Remember that digestion is powerfully influenced by the mental state. Keep the mind cheerful and hopeful during, and just after, the meal hour.

9. The cook stove is of great value in cooking cereals, but it is overworked and much abused. Most fruits, vegetables, and nuts are better eaten raw. Eat something uncooked every day.

10. Drinking at meals has little to do with digestion in the case of most well people. Some do better with liquids — some are better without.

11. Engineers know how to feed their furnaces better, and farmers know how to feed their cattle better, than the average man knows how to feed his own body.

12. Eat natural foods, cultivate your taste, and the appetite will in time become a fairly reliable guide as to when to eat, what to eat, and how to eat.

13. The American people eat too much meat. That is, they take too much protein. Other foods containing protein are cheese, eggs, beans, and most nuts.

14. Study foods and learn how properly to balance your daily ration. The average man requires about 2,000 calories a day. Consult the food tables and find out how much you are eating.

15. A good appetite ordinarily equals a good digestion. If the appetite is poor, make such changes in your habits as will enable you to earn a good one. A good appetite equals good digestive juices.

16. Multiplicity of dishes tend to produce indigestion.

Eat but two or three articles of food at a single meal. If you are not hungry skip a meal now and then.

17. Remember that most people eat too much and eat too often. That "all-gone" feeling in the region of the stomach is the cry of nature for oxygen or water, not for food. Two meals a day are better for some people than three.

18. Avoid too many highly seasoned dishes, pickles, and the stronger condiments such as mustard, pepper, and vinegar — in fact look with disfavor upon anything that is "hot" when it is cold. Remember, whatever braces a food against decay, also braces it against digestion.

VII. PURE WATER DRINKING AND BATHING

1. Fresh fruit juices and lemonade are good beverages — wholesome and healthful. Mineral waters have a reputation which is seldom deserved.

2. Remember that the internal bath of the body is just as necessary and essential as the external bath.

3. Most filters are a snare and a delusion, and freezing water does not necessarily destroy disease germs. Boil all suspected drinking water.

4. Cultivate a regular water-drinking habit. Most sedentary people drink about one-fourth the water they need.

5. Examine the source of your drinking water as carefully as you do the source of your food supply. Look out for contaminated water.

6. All the activities of cell life are carried on under water. Water is indispensable to every nutritional change. Life cannot exist without water.

7. The daily intake of water should equal the daily outgo. The minimum requirement according to this rule, for sedentary persons, is about eight glasses a day.

8. Cleanse the mouth and teeth on arising and after each meal.

9. The neglect of regular bathing results in overworking the liver and kidneys, and debilitates the skin. For persons who are fairly strong, the cold morning bath is an excellent tonic.

10. Hot baths are weakening and debilitating unless they are finished off with short applications of cold water.

11. Regular bathing is not a luxury, it is a necessity. The skin should be cleansed by a warm soap bath twice a week.

12. Most people will get better results from cold baths if they are taken in a warm room and immediately followed by physical exercise.

13. The effects of short, cold baths are natural. This same kind of reaction would be spontaneous in the healthy skin exposed to the air. Baths are simply an antidote for the wearing of clothes.

VIII. REST, RELAXATION, AND RECREATION

1. Modern strenuous living of the civilized nations is greatly raising the blood-pressure and thereby predisposing to disease.

2. Remember that the defenses of the body against disease are greatly increased by leading the natural life—the simple life.

3. High blood-pressure has more to do with disease and old age than hard arteries. A man is as old as his arteries are hard and his blood-pressure is permanently raised.

4. Remember that the blood-pressure is raised by cocaine, tobacco, tea, coffee, strong condiments, excess of flesh foods, as well as by constipation, worry, anxiety, and other morbid states, including moral condemnation.

5. The white blood cells constitute the body's standing army for the resistance of infectious diseases. Remember that the function of these cells is perverted and destroyed by alcohol, morphine, quinine, and many other drugs, as well as

by the poisons of dyspepsia, and constipation absorbed from the bowel.

6. Don't take drugs for worry and sleeplessness. Take a warm bath. The American people sleep too little and eat too much.

7. Regular rest is essential to the health of mind and body. Make your weekly Sabbath just as complete a day of rest and recreation as possible.

8. Cultivate the art of living with yourself as you are, and with the world as it is. Remember that worry about business, social, or industrial affairs can never help.

9. The secret of deliverance from worry is self-control. Minimize your difficulties. Cultivate faith and trust.

10. It is a great mistake to fight sleeplessness with drugs. In the end the drugs themselves will produce more insomnia. The average man requires about eight hours of sound sleep every night.

11. Shun worry and all its mental cousins as you would flee from the smallpox. There is no trouble, however serious, worrying over which will do any good.

12. Take a half day off in the middle of the week if you can get it. Spend it in wholesome recreation, in the cultivation of health, and in making other people happier.

13. To rob one's self of sleep is simply putting a mortgage on future health and happiness. Nature is sure to foreclose it and you will be required to pay compound interest.

14. The conditions which favor sound sleep are: quiet, mental peace, pure blood, good digestion, fresh air (the colder the better), an empty stomach, physical weariness (but not fatigue), mental weariness (but not worry).

15. The physiologic resting posture is with the body recumbent, resting upon either side, perhaps slightly inclined toward the abdomen. The emptying of the stomach, if one has eaten at a late hour, and the action of the heart, are fa-

vored by sleeping on the right side. There are numerous reasons for not sleeping on the back.

16. Waking up tired in the morning after having slept all night is significant and means one or more of three things :

- a. Auto-intoxication — that is, self-poisoning from the accumulation of body poisons in the blood-stream.
- b. Nervous exhaustion — a physical condition verging toward the borderland of brain-fag or nervous prostration.
- c. Habitual worry, despondency, or some other mental attitude of fear and grief. Remember, sleep is an antidote for work, but not for worry.

IX. THE PREVENTION OF DISEASE

1. Consumption is largely spread by careless spitting. Agitate against it. Avoid using towels and other toilet articles which have been used by others.

2. Remember that the mosquito is the means of spreading both malaria and yellow fever. Next to germs themselves, the great cause of disease is insanitary surroundings.

3. Look out for dust. House dust is especially dangerous. Dust is the airship of the microbe.

4. Remember that typhoid fever, summer diarrhea, etc., come largely from contaminated water, milk, and food.

5. All closets not having sewer connections should be carefully screened to prevent flies gaining access thereto.

6. Children may contract diphtheria, scarlet fever, and other diseases from sick cats, dogs, and other domestic pets.

7. Avoid the public drinking cup. It is a carrier of disease, and, for the same reason, promiscuous kissing should be tabooed.

8. Fruits and vegetables, when eaten raw, should be thoroughly washed to remove the eggs of intestinal worms and parasites.

9. The slums of the great city, through their vice and immorality are spreading broadcast the dreaded diseases of social transgression. Much sickness is thus the result of sin.

10. Raw pork is dangerous; it may contain trichinae. Rare beef may cause tapeworm, while typhoid fever is contracted from infected raw oysters.

11. The vast majority of diseases are wholly preventable. It lies within the power of man to drive every germ disease from the face of the earth.

12. Rats, fleas, and bedbugs, together with other animal parasites, are responsible for carrying many diseases, including the dreaded bubonic plague.

13. Remember that disease never comes without a cause. Most acute diseases are caused by microbes, and the majority of chronic disorders are caused by wrong habits of living.

14. Always give hearty cooperation to the public health officials in carrying out their regulations and quarantine requirements. They are working for your good as well as that of the community.

15. Remember that germs are not attracted to the healthy man. Health is more contagious than disease. Ordinarily, we fall victims to germs only after our vital resistance is lowered by physical transgression.

16. The common house fly is a dangerous disease carrier, engaged in spreading typhoid fever and half a score of other diseases. Destroy both the flies and their breeding grounds. Keep them out of the house, and especially away from the food.

PART II

Mental Degeneracy

or

The Increase in Mental and Nervous Disorders

CHAPTER XIV

ARE WE BECOMING A NEUROTIC RACE?

WHEN we hear so much of neurasthenia and nervous exhaustion, when we see so many people afflicted with some form of nervousness, we may be tempted to think that the American people are becoming a race of neurotics, but perhaps things are not as bad as they seem on the surface. As we found in the examination of statistics relating to the increase in physical diseases, while they may be disconcerting, they are not, in some instances, necessarily unduly alarming. But, with all the optimism we can muster up, as we view the situation in regard to mental and nervous disorders, we must, in the language of the politicians, "view the same with more or less alarm."

GENERAL NERVOUSNESS

There is little doubt in the author's mind but that general nervousness is at present on the increase. Primarily, I do not think this is altogether due to our so-called high-pressure living — the fierce pace which the present generation is setting in its social, business, and even its recreational life. I think the fundamental weakness, in so far as the nervous system is concerned, is largely hereditary, and that our all-round fast living is merely a contributing factor which earlier and more completely develops and makes manifest these various nervous disorders and weaknesses, which are

but evidences of heredity that is nervously weak and constitutionally inferior.

These victims of nervousness suffer from a great assortment of neurologic difficulties and complaints, and are tortured and tormented by a vast array of mental and nervous sufferings or symptoms. They embrace the chronic worrier, the individual whose mind seems to travel over a circuit of troubles, both imaginary and real. Among these nervous sufferers are found the victims of definite dreads, crystallized fears, and an endless assortment of both motor and mental obsessions, not to mention those who are hyper-conscientious, who are never able to please themselves with even their best efforts, together with a large number of individuals who take everything too seriously, not excepting themselves.

Perhaps none of us are perfect when it comes to the control of our nerves and the management of our habits. Perhaps we are all more or less a bit nervous at times. I have sometimes thought these nervous people were little different than the rest of us, only they make a special business of picking out these undesirable nervous manifestations, and so concentrate their minds upon them as to make it a sort of a habit in their experience. All of us get tired, but we rest up and forget it. These people carry it over from one day to another, and make almost a combined religion and business of being sick, of spying on themselves and thinking incessantly of their unpleasant symptoms and disagreeable sensations.

NEURASTHENICS

Neurasthenia is on the increase, and it seems to be an indication of a deterioration in the fundamental fiber of the American stock. I don't believe that people merely worry more than they used to because of the increasing and changing vicissitudes of life, but that more people are actually

born neurologically disinherited. I regard the increasing neurasthenic tendencies of the age as another evidence pointing toward race degeneracy.

By neurasthenics we refer to those people who are suffering from a habitual state of nervous fatigue, due quite entirely to functional nervous causes. These neurasthenics must not be confused with that general nervousness which is so often associated with various organic diseases such as tuberculosis, Bright's disease, diabetes, or other real bodily ailments. Neurasthenia is not a disease, in and of itself, as we commonly understand the term; it is merely a functional nervous disorder, indicating, on the one hand, inheritance of a poorly balanced nervous system, and, on the other, a lack of sufficient control over this more or less un-normal nervous mechanism.

SYMPTOMS OF NEURASTHENIA

Neurasthenia is characterized by great nervous irritability and by mental or nervous fatigue out of all proportion with what could be expected from normal mental and physical activities. This constant fatigue, which is sometimes very much worse upon first arising in the morning, is accompanied by a vast assortment of unpleasant sensations and other symptoms in the head and various parts of the body. This fatigue is usually very much less as the day wears on, more particularly in the evening after supper. Neurasthenics seem to be improvident in storing up their nervous energy, or else extravagant in expending it; at least they are always short — suffering from lowered nerve tone. Among the minor nervous symptoms which afflict these patients may be mentioned a series of functional nervous disturbances embracing headache, backache, insomnia, dyspepsia, and chronic constipation, not to mention a host of sensory troubles which are often most annoying and which manifest

themselves in the skin variously as itching, pricking, burning, creeping, crawling, and other abnormal sensations.

EARMARKS OF NEURASTHENIA

Aside, then, from the characteristic neurasthenic fatigue and the before mentioned numerous symptoms or sensory vagaries, the neurasthenic state is marked by four cardinal and characteristic symptoms:

1. *Increased suggestibility*.—The patients are prone to think they have any and all diseases they hear or read about.

2. *Oversensitiveness*.—Their feelings are always being hurt. They seem to wear their feelings all on the outside of the body in the skin.

3. *Abnormal impressibility*.—They are overimpressed with everything that happens, not excepting their own thoughts and feelings.

4. *Increased emotionalism*.—They often cry if you point a finger at them, and sometimes weep if you don't.

All of this mental and nervous condition, of course brings about a state of mental confusion—disturbance of memory—and this sometimes gives the patients great concern. They feel that they are on the sure and quick road to insanity, and of course it goes without saying they find it difficult to “make up their minds:” that is, decision is greatly delayed, terribly hampered, and they sometimes wear themselves out trying to decide whether to get a soft hat or a stiff hat, or whether to set the black hen or the Dominique hen.

IMAGINARY SUFFERING

Some of our nervous patients are very fastidious about their sensations and pains, and of course they are exceedingly sensitive if anyone intimates that the trouble is in the “head,” or that it is “imaginary;” they want no one for a moment to presume that their sufferings are not real, even when they

are imaginary. An imaginary disease may not be real, but a diseased imagination is one of the realest things on earth. These people may be suffering the tortures of the damned, even while the doctor looks them straight in the eye and assures them that there is nothing at all wrong. Imaginary suffering, psychic sensation, and fictitious pain, may mean something to the nerve specialist, but they mean nothing to the victims of "nerves." They continue to be literally tortured by these various sensations of which they are abnormally conscious, and which they sometimes call pain, regardless of the terms which the medical diagnostician may apply to their ailments.

These nervous sufferers may get into the habit of being in pain or in chronic misery. Their threshold for the recognition of pain may indeed become so lowered, so enormously depressed, that the ordinary and normal sensations of physiologic life passing over their nerves may be recognized as pain and may be the occasion of actual suffering on the part of these unfortunate creatures. That is, nervous patients can get in that perverted and abnormal state of mind and body where they will recognize the sensations which the most of us regard with pleasure and look upon as normal—I say where they will recognize these same normal sensations as a source of suffering, as bona fide miseries of the body, sometimes even insisting that they are actually painful. It is quite easy for these sufferers to take from one to two hours, whenever occasion offers itself, to tell their friends or their physician the story of their sufferings in the minutest detail. It becomes a habit with them, a mania, and this has no doubt led to the unfeeling pleasantry that some of these unfortunates actually come to the place where they "enjoy poor health."

The author believes that heredity is the real basis for most of our neurasthenic manifestations. Environment simply

serves to develop and bring forth these numerous latent but inherent tendencies.

PSYCHASTHENIA

The psychasthenes are those who suffer from inherited neurasthenia — true brain-fag. They are the people who are “born tired,” and are never really able to get over it. I believe that the number of psychasthenes in our population is steadily increasing, and while psychasthenia is not, in many ways, very different from neurasthenia, it is not so easy to get away from or cure, and it represents the behavior of a nervous system that will remain more or less psychasthenic throughout one's lifetime.

The psychasthenic's symptoms are more truly mental than are those of the neurasthenic. The psychasthene usually complains of being fatigued or worn out, since 15 or 16 years of age, though he may be otherwise in a state of excellent health. The psychasthenes do not have to have stress and strain or sickness to bring on their trouble — it just comes on naturally, just like water runs downhill. In many ways they behave, and react to their environment, like a child would, unless the occasion is really one that demands large thinking and big action; then, as a rule, they meet it bravely, for the time being forget their troubles, but relapse back into a state of complaining and fatigue as soon as the crisis is past.

Psychasthenia is a true inheritance of racial stock; it is a part of our ancestry, a sort of defect in hereditary evolution, and therefore overtakes us without will or leave. Our personal responsibility is only concerned in and with those methods and measures which, on the one hand tend to make the situation worse, or, on the other, assist in overcoming nature's handicap, thus enabling the psychasthenic victim to make a creditable showing with an otherwise abnormal mechanism and a greatly curtailed nervous capital.

PSYCHASTHENIC SYMPTOMS

Many of these individuals who are born tired, if they are raised in the country or amidst rural surroundings, do very well and make good in life. They do not do so well in the swift channels of commerce and society which characterize the larger cities. There they are more likely to break down, "go wrong," or "blow up." It is quite largely from the psychasthenes of the nation that the ne'er-do-wells of modern society are recruited. The majority of our inveterate and incurable tramps are afflicted with this psychasthenic taint, as are also those scions of certain aristocratic and wealthy families who are now and then so strikingly attacked with the *wanderlust*. So it would really seem that this term "psychasthenia" might be pressed into service for the purpose of courteously describing a certain stratum of modern society which might otherwise commonly and vulgarly be called "lazy."

The psychasthene's chief trouble, after all, is not merely the ever-present and pressing fatigue, but also a general incapacity for doing things, coupled with the everlasting habit of over-attention to everything connected with his thinking, living, feeling, and working. The psychasthene spends the larger part of his mental effort and nervous energy in watching himself and otherwise trying to help himself in carrying on those varied mental and physical processes which nature intended to be automatically executed. Thus his nervous energy is almost wholly consumed on himself, in a useless and thoroughly harmful manner. In other words, the psychasthene is chronically guilty of "spying on himself." He cannot let his mind think or his stomach work without watching it. He is even guilty of trying to watch himself go to sleep, which of course never fails to spell insomnia.

But it is surprising what education and training, develop-

ment of decision and improvement of will-power will do for some of these psychasthenic patients. They learn to forget their ever-present fatigue and their nervous sensations. They are able to train themselves to go about their business and to come just about doing a real man's or a real woman's work in the world, so that after all some of them turn out to be very efficient workers, and to be quite happy and contented with their lot. The majority of them are really able to master the art of living with themselves as they are and the world as it is.

HYSTERIA

Our utter carelessness and indifference as to who marries, in this country, is not only contributing to an increase in our markedly defective stock, but is also leading to an undoubted increase in all of the lesser forms of nervousness, including hysteria. And what is hysteria? The answer is difficult. In olden times it was called demoniacal possession, witchcraft, and what not. Hysteria, as a disease or a nervous disorder, must not be confused with mere hysterics, which any neurotic person may indulge in from time to time. Hysteria is far more of a grave disorder than hysterics. Most nervous, uncontrolled, neurasthenic individuals may get hysterical at times, but this would not warrant a diagnosis of hysteria.

The older physicians were tempted to look upon hysteria as a malady that was largely feigned; as a fictitious sort of disease performance on the part of certain sorts of nervous and emotional women. Men were not supposed to have the disorder unless they were somewhat effeminate. Doctors disagree as to what hysteria really is, but I have come to look upon it as a sort of hereditary deficiency in nervous self-control; at least the tendency is hereditary. It is a mild disorder of personality and occurs in those individuals who are,

by heredity, highly suggestible, on the one hand, and who possess a small degree of self-control on the other. It is something more than neurasthenia, it is more deeply rooted than the mere nervous disorders. It comes nearer being a part of one's real temperament and personality. There seems to be at times a real mental insufficiency, which results in the sympathetic nervous system engaging in various wild and sort of runaway performances affecting various parts of the body and the patient's general behavior. During these attacks the disorder manifests itself by producing many and diverse symptoms, and is able in one way or another to impersonate almost every known form of human illness. And of course it is true that an uncontrolled imagination often plays a large and important part in the manifestations of this perplexing disorder.

Hysteria is, then, briefly summarized, a nervous disorder occurring chiefly in women, characterized by lack of control over the emotions and certain physical acts, by morbid self-consciousness, by exaggeration of all sensory impressions, and by extraordinary ability to simulate the symptoms of numerous diseases, and thus to impersonate a host of minor and major physical disorders.

THE HEREDITARY NATURE OF HYSTERIA

Hysteria, whether it is the phenomenon of the imagination playing the rôle of the actor; whether it is partial dissociation of ideas, deranged nervous control, or disturbances of personality; whether it is temporary insanity of the sympathetic nervous system, or what not; it is certainly a disorder that is largely hereditary. Whatever the causes of stress and strain, nervous tension, anxiety or worry, or whatever the bodily habits or physical vices which may directly or indirectly contribute to the outbreaks, attacks, or spells of hysteria, the fundamental and underlying fact re-

mains — the disease is hereditary and is certainly transmissible in some form or other to the next generation.

While it is true that neurasthenia, psychasthenia, and hysteria probably do not tend to go down the line with the same unerring accuracy as do feeble-mindedness and insanity; nevertheless, when two individuals who are highly neurotic marry it is common observation that the majority of their children are almost equally neurotic or more so. Now when these neurotic persons are mated with normal or nervously superior individuals, there usually occurs great improvement in the majority of the offspring. So we are encouraged by the fact, or by the belief, at least, that these less serious nervous disorders have a tendency to "breed out" of the stock rather than to increase in intensity and severity with successive matings. Many of these nervous traits seem to behave after the fashion of Mendelian recessions. This fact probably explains why we are not cursed with more defectives of the nervous sort, in view of our utter indifference to improvement of our marriage laws and other eugenic precepts. But, notwithstanding these favorable features regarding the inheritance of these disorders, it is the common belief of physicians and specialists who handle these troubles that they are considerably on the increase in America at the present time.

SYMPTOMS OF HYSTERIA

The symptoms of hysteria are too many and varied to catalogue. As has been intimated, these patients can simulate the manifestations of almost any and every known disease, ranging from a fit of bad temper to complete unconsciousness or catalepsy, on the mental and nervous side; and from simple perversion of skin sensation down through headache and all sorts of pains to apparent appendicitis and gallstone colic on the physical side. And in many cases, in connection

with the periodical manifestations of this disorder, there is to be found more or less emotional repression, lack of adequate self-expression. Many cases of hysteria are also associated with some conscious or subconscious sex disorder — sex repression. In most instances where the sex element enters into the causation of hysteria or other forms of nervousness, the victims are more or less unconscious of the presence of this factor.

RACIAL INSTABILITY

We cannot look with equanimity upon the fact that the racial stock of a state or nation is becoming more unstable, less self-collected and less self-controlled. It is no cause for congratulation that our people are threatened with becoming, individually and collectively, more and more panicky and hysterical. Normal nervous stability and that superb self-poise and self-control, which are characteristic of superior peoples in the higher civilized races, cannot be sacrificed, even to a small degree, through successive generations, without jeopardizing the future integrity and position of any race of people.

It should not be inferred that a race must necessarily be stolid, stoical, and unemotional, in order to be free from hysterical tendency. A people may have a great inherent capacity for self-expression, they may have great potential emotionality, they may indeed be warm-hearted and truly spiritual, and at the same time be a great and growing race. Let us not be frightened by the presence among us of any of these good characteristics of a great nation. We should only be alarmed by the fact that there is to be found too great a tendency to this direct hereditary instability of the nervous system, and that, as a people, if it should continue to increase throughout succeeding generations, we are destined to become a nation with less self-control, less self-

respect, and less inherent capacity for individual development and collective national greatness.

HYPOCHONDRIACS

Under the functional nervous disorders, before we take up insanity and feeble-mindedness, we should also briefly note hypochondria, melancholia, and the chronic "blues." Those who suffer from these disorders usually have something wrong with them physically as well as to be so unfortunate as to have inherited a defective and deficient nervous system. They are the folks who have chronic dyspepsia and biliousness. They are bilious mentally as well as physically. They make a business of being sick when they are well, just as a Christian Scientist makes a business of being well when he is sick. They suffer a great deal with burning sensations here and indefinite pains there. They are, in a word, chronic pessimists. One thing characteristic of them is not merely the quality of their complaints but also the fact that they invariably tend to exaggerate even their physical ailments. They are constantly preoccupied with their own troubles, unerringly self-centered and introspective to the highest degree. We especially find these cases in people of over forty years of age who have no active "job" to interest and keep them busy.

And, of course, these hypochondriacs may go on to the verge of melancholia, where it is difficult to distinguish between severe cases of hypochondria and mild cases of melancholic insanity.

CHOREA, OR ST. VITUS' DANCE

We have a large group of nervous disorders which do not belong to the so-called neuroses on the one hand or the insanities on the other. Chief among these disorders is St. Vitus' dance, a disease frequently appearing in the offspring

of nervous parents. This disorder is too well known to need description, being characterized by jerky, involuntary movements, and minor jerking of the face and upper extremities. These movements are not indulged in during sleep, or when the patient's mind is fully occupied. On the other hand they are present when the patient is an object of anxious solicitude or comment, either at home or in school. This condition is very general and undoubtedly on the increase, notwithstanding our improved methods of treatment and the fact that these cases are now more generally early isolated and more effectively treated.

TICS AND HABIT SPASMS

How frequently one sees on the streets, in the trolley cars, or at social gatherings, persons who have these minor nervous manifestations commonly called "tics." Among these disorders may be mentioned involuntary winking of the eyes, spasmodic movements of the nose, the upper lip, and other muscles of expression, not to mention nodding and talking tics. Among the latter may be mentioned the habitual utterance of such words as "don't you know" or "listen," or when hesitating to say "hum" or "hem." These are all purely and simply verbal tics. Then the nervous mannerisms and useless gestures of some public speakers no doubt belong to this disorder, as does also the fussiness and finickiness of some other people who must needs constantly play with a pencil, a knife, or twirl their thumbs, or their hair. Others chew their finger nails or pick the nose.

These manifestations or nervous practices certainly run in families. It is probable that while they are, in the main, hereditary, suggestion or example always plays a large part. If taken in time, young people can be cured of these things, and even the older ones can help themselves by persistent effort.

STAMMERING AND STUTTERING

If one reads the magazines today and notes how many stuttering specialists there are and how many stammering schools are run for helping these sufferers, he would suspect that stammering and stuttering are at least not on the decrease. They seem to be on the increase. These disorders are sometimes neglected or winked at in childhood, on the supposition that the young folks will outgrow the ailment. This is a dangerous practice, for it indicates inherent instability and deficient control over the nervous system. Some nervous individuals acquire such a stuttering of the gullet that they think they are going to choke, and are, for long periods, afraid to eat solid food. Others stagger in their walk, with no other cause to explain their behavior. I once had a patient who had stuttering of the hand when he came to sign his name, although he could write anything else without the least quiver of the fingers. I have wondered if even some forms of so-called "writer's cramp" didn't belong in this category.

There are perhaps a dozen successful stammering cures. They are all based on the principle of getting the patient's mind off himself and his talking. It was long ago observed that patients seldom or never stutter when they sing, and that the stutterer has a tendency to try to talk on empty lungs.

Many forms of physical tremors that are not associated with real disease also belong to this same group of nervous disorders.

MIGRAINE — NERVOUS SICK-HEADACHE

Last, but not least, among the inherited nervous disorders, should be mentioned the periodic nervous headache — *migraine*. The disease is just as certainly hereditary as epi-

lepsy, perhaps more so. It is, from the standpoint of medical science, an incurable form of headache, though much can be done to help these sufferers. When both parents have these headaches, the children are almost sure to be sufferers, but when only one parent is afflicted, the majority of the offspring is apt to be free from it. If one parent is entirely free from the disorder and comes from a family likewise unaffected, then none of the children are likely to be affected. Mendel's law of heredity appears to govern in the case of this disorder.

And so it would seem that almost all of these nervous disorders which afflict the white race are on the increase throughout the civilized world, and the author believes particularly on the increase when it comes to the American people. But the problem would be far from serious if this were all we had to fear regarding the increase of hereditary nervous diseases. This is but an introduction. These disorders are indeed minor and trivial compared to the more serious nervous diseases and mental disturbances which we are about to consider.

SUMMARY OF THE CHAPTER

1. There is, undoubtedly, an increase in general nervousness; caused more by heredity than by environment.
2. This nervous group embraces those with chronic worry, special fears, definite dreads, obsessions, the hyper-conscientious, and those who take everything too seriously, including themselves.
3. These nervous sufferers make a combined religion and business of being sick, of spying on themselves and thinking incessantly of their disagreeable feelings and sensations.
4. Neurasthenia is on the increase, due to deterioration in the nervous fiber. More and more people are born neurologically bankrupt.
5. Neurasthenia is not a disease; it is a state of habitual

nervous fatigue — a functional nervous disorder due largely to heredity, but also influenced by environment.

6. The minor symptoms of neurasthenia may embrace headache, backache, insomnia, dyspepsia, constipation, and a host of sensory disturbances such as itching, crawling, pricking, etc.

7. The characteristic earmarks of the neurasthenic state are: increased suggestibility, oversensitiveness, abnormal impressibility, and increased emotionalism.

8. In neurasthenia, decision is hampered and delayed. Patients find it very difficult to "make up their minds."

9. There is much fastidious pain and imaginary suffering; and, while an imaginary disease may not be real, a diseased imagination is one of the realest things in the world.

10. There is grave danger of neurasthenics forming a habit of suffering and complaining and this may be carried to the point of apparently "enjoying poor health."

11. The psychasthenes are those who suffer from inherited neurasthenia — true brain-fag. They are the unfortunates who are "born tired."

12. In simple surroundings many psychasthenes do well; but in the large city they are apt to break down, "go wrong," or "blow up."

13. The chief troubles of the psychasthenes are: ever-present weariness, incapacity for work, and in-growing of the attention — they can't get their minds off themselves.

14. The psychasthenes — in common with neurasthenes, make a business of "spying" on themselves.

15. Mental training, re-educating the will, and developing the power of decision will work curative wonders for all these neurotic sufferers.

16. Hysteria as a disease is one thing and hysterics — in which any nervous person may indulge — is quite another thing.

17. Hysteria is a sort of hereditary deficiency in nerve-control — a mild disorder of personality in certain highly suggestible and overemotional individuals.

18. In hysteria the sympathetic nervous system seems to indulge in wild, runaway performances at the behest of an uncontrolled imagination.

19. The characteristics of hysteria are: lack of control over certain physical acts, emotional explosions, morbid self-consciousness, sensory exaggerations, together with a peculiar ability to impersonate numerous other diseases.

20. Hysteria is a hereditary disorder. It is transmitted to succeeding generations, modified by the nervous character of the other parent concerned.

21. There is some ground for the belief that these functional nervous disorders, unlike insanity, show a tendency to "breed out" of the stock in successive generations.

22. The symptoms of hysteria are too many and varied to summarize; and too well known to require naming.

23. Racial instability, lack of self-poise and self-control, are hereditary and their increase in the nation is not to be viewed with equanimity.

24. Hypochondriacs are those who suffer from both physical and mental ailments; they make a business of being sick even when they are well.

25. Chorea, together with a host of nervous "tics" are merely straws which show which way the winds of heredity are blowing.

26. Stuttering and stammering are only other manifestations of this inherited nervous instability and are cured by any system that gets the patient's mind off himself and his defect.

27. Migraine — nervous sick headache — is an inherited disorder which unerringly passes on from one generation to another, almost in accord with Mendel's law.

CHAPTER XV

IS INSANITY INCREASING?

THE word insanity means little or nothing from a scientific viewpoint, as it is so loosely used to describe all sorts of mental and nervous ailments. No difference is generally made in the mind of the public between a man who has gone insane following the toxemia of a severe case of typhoid fever or meningitis and a woman who has "gone crazy" following some simple nervous strain, because of the fact that she was born of defective ancestors — because she literally inherited insanity — and, in her turn, if she is permitted to — will just as certainly transmit the cursed strain of defectiveness on down the line to the next and succeeding generations.

It is in this latter sense, the sense of hereditary insanity, that the term is more largely used in this chapter. We have little to fear from increased insanity due to vice, intemperance, and disease — we know the cause — and can apply the remedies any time.

INSANITY IN THE UNITED STATES

The total number of institutions for the insane canvassed at the last special census was 366, and the total number of insane for whom data were obtained was 248,560, of whom 187,791 were present in the institutions on January 1, and 60,769 were admitted during the year. The number of insane enumerated in institutions at the census of 1904 was 199,773, including 150,151 inmates present at the beginning of the year and 49,622 admitted during the year. In the six years

from 1904 to 1910 there was an increase of 37,640, or 25.1 per cent, in the number of insane confined in institutions for that class, as compared with an increase of only about 12 per cent in the total population of the United States, the number of insane in hospitals per 100,000 population advancing from 183.6 in 1904 to 204.2 in 1910. The increase during this period in the number admitted to such institutions during the year was 11,147, or 22.5 per cent, the ratio of admission per 100,000 population increasing from 60.7 in 1904 to 66.1 in 1910. As no attempt was made, either in 1904 or in 1910, to enumerate the insane outside of institutions, it is a question to what extent this striking increase in the population of hospitals for the insane and in the number of annual commitments to such institutions, represents an increase in the prevalence of insanity, and to what extent it may be due to an extension of the practice of placing the insane under institutional care. This is a question which will receive some consideration in the discussion which follows. Appendix A, Table No. 5, shows the institutional insane in the United States from 1850 to 1910.

INSANITY IN GREAT BRITAIN

The increase of insanity in Great Britain is cited by Doctor Tredgold as evidence of race degeneracy. While the increase of the population of England and Wales in fifty-two years has been 85.5 per cent, the increase of the certified insane has been 262.2 per cent. At the present time there is one insane person to every 275 of the normal population of England and Wales. This fact is, to say the least, "very disquieting." But, as the Doctor still further shows, "there is even a more numerous class suffering from a still more serious condition inasmuch as their incapacity is not possibly temporary, but is permanent and incurable. These are the feeble-minded."

Of this class, there is now known to be in England not fewer than 150,000, making a total of 290,000 mentally affected persons in England and Wales, besides "a vast horde of persons discharged from asylums, whose mental condition is decidedly unsatisfactory; and an additional army of individuals, who, although they have not yet been committed to asylums, are nevertheless of feeble and unstable mental constitution and may well be described as potential lunatics." Dr. Tredgold makes the remarkable statement that in England and Wales the mentally infirm constitute "well over 1 per cent" of the entire community.

Table No. 6, Appendix A, shows the findings of the Census Bureau in regard to the number of insane of various ages in the United States, and indicates that the highest per cent was from 55 to 59 years — 587.8 per 100,000 of population. The total number of insane of all ages, according to this table, represents 204.2 per 100,000 of population.

STATISTICS ON INSANITY

One authority estimates that we have one insane person in the United States for every 280 population. We actually have one insane person in our state institutions for about every 350 population. No one knows what per cent of our insane is confined in public institutions.

The statistics throughout the whole country seem to indicate that insanity is increasing two or three times faster than the population — certainly not less than twice as fast. The following table shows the alarming increase in the percentage of insanity since 1850 in this country and Great Britain.

UNITED STATES

1850 — insane persons to 1,000,000 population....	673
1900 — insane persons to 1,000,000 population....	1,700
1910 — insane persons to 1,000,000 population....	2,042

GREAT BRITAIN

1850 — insane persons to 1,000,000 population.... 1,810

1900 — insane persons to 1,000,000 population.... 3,070

By studying these statistics we see where our friends who believe we are a passing race get their alarming ideas; for, worked out (as one pessimist sees things) it looks on paper something like this:

At same ratio of increase:

	Per Cent
1950 we have insane persons per 1,000,000 of population	3,400
2000 we have insane persons per 1,000,000 of population	10,000 1
2050 we have insane persons per 1,000,000 of population	30,000 3
2100 we have insane persons per 1,000,000 of population	90,000 9
2150 we have insane persons per 1,000,000 of population	270,000 27
2200 we have insane persons per 1,000,000 of population	810,000 81
Before 2250 the total population will be insane.....	100

The error in these statistics and figures will be more fully discussed presently. The truth is bad enough — there is no occasion for magnifying the serious state of affairs.

In Chicago, Dr. Podstata, once estimated that one person in every 150 was insane or mentally unbalanced; while one person in every 5 was thought to be more or less predisposed to insanity. The following estimates were made of conditions in the state of Illinois:

15,000 insane	10,000 epileptics
54,000 unstable	10,000 imbeciles

Stated in percentage:

Total population	5,000,000
Total defectives	35,000

This would mean that we had 7,000 defectives to 1,000,000 of population and this is about 1 per cent. If this is true we are in about as bad a condition as they are in England.

This same tendency to insanity may explain why there

are 10,000,000 persons living in comparative poverty in the United States, and also why this land of plenty and prosperity should boast of over 4,000,000 actual paupers and dependents.

Dr. C. L. Dana, formerly president of the New York Academy of Medicine, believes the increase in insanity to be real as well as apparent. He says: "The annual increment of insane in Massachusetts, according to the Massachusetts Board of Lunacy is 400 in about 10,000 or 4 per cent." At this ratio the annual increment for the United States would be approximately 5,600.

We may say that in the last twenty-five years the ratio of insane to sane has shown an apparent gradual increase from 1 to 450 to 1 to 300, and this latter seems to be about the ratio in those communities of North America and Europe in which modern conditions of civilization prevail. This average has varied but little in the last few years: the slight yearly increase probably will not change rapidly and probably not continue, for when the increase in the insane reaches a certain point of excess, society will have to take notice of it and correct it.

There are no accurate figures of the total number of insane. Mr. Sanborn estimates that the number exceeds 250,000 in the United States. Our reliable data pertains only to those insane persons who are confined in public institutions. No one knows the number of those who are at large, or confined in special and private institutions. As has already been noted the total number of insane in state institutions at the last special census was 187,791 with 60,769 admitted during the year.

But when all is said and done, the fact remains that there are several hundred thousand insane persons in the United States (not to mention tens of thousands of feeble-minded and other defectives) many of whom are not prevented from reproducing their kind, and that by this failure to restrain them, present-day society is putting a heavy bur-

den of expense, unhappiness, and a fearful racial handicap on coming generations.

ANALYSIS OF INSANITY STATISTICS

After due allowance has been made, however, for those factors which affect the ratio of institutional insane to total population and yet have nothing to do with the relative number of cases of insanity in the community, it is nevertheless reasonably certain that the rates are also affected by actual differences in the prevalence of insanity* in different sections of the United States. Such differences naturally result from variations in the composition of the population as regards sex, color, race, nativity, and age, and to an even greater extent probably from variations in the proportion of the population living in cities or engaged in industrial or commercial, as distinguished from agricultural pursuits.

The migration of the native population within the United States doubtless has some effect upon the prevalence of insanity in the different sections. The defectives and subnormals do not usually emigrate. They are left behind in the older sections of the country while the newer sections are being settled by the more vigorous and energetic representatives of the native stock. How insanity varies in different sections of the United States, is shown in Table No. 7, Appendix A.

CONDITIONS LEADING TO INCREASE OF INSANITY

The ratio of total insanity enumerated in 1880, when the enumeration is believed to have been more complete than at any other census, was 183.3 per 100,000 of the total population. In 1910 the insane in hospitals alone represented a ratio of 204.3 per 100,000 population. As compared with the total population, therefore, the number of insane in in-

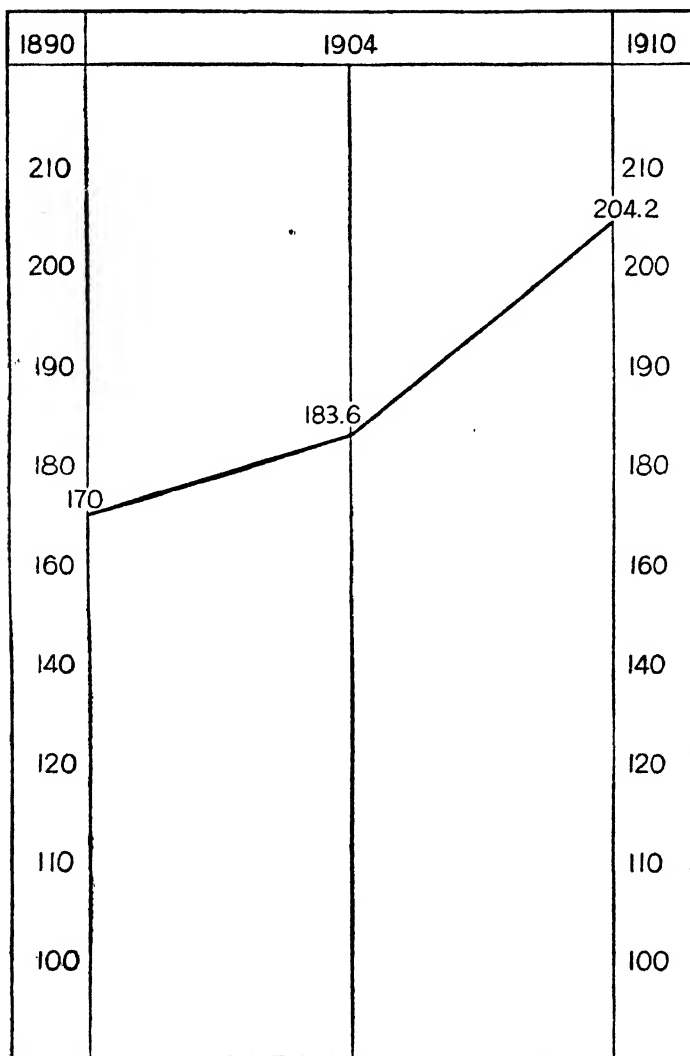


Fig. 12. Graphic showing increase in insanity in the United States. Figures indicate number of insane per 100,000 of population

stitutions in 1910 was relatively greater than the total number of insane enumerated in 1880. (See Fig. 12.)

Without entering into any general discussion of the causes or influences which might be operative in promoting an increase of insanity, one important change in social conditions in the United States as revealed by census statistics may be noted in this connection, namely, the great increase in the proportion of population living in cities. In the thirty years between 1880 and 1910 the urban population of the United States—that is the population residing in incorporated places having more than 2,500 inhabitants, including New England towns above that limit—increased about 190 per cent, or from 15,000,000 in 1880 to 43,000,000 in 1910, while the rural population increased only about 40 per cent, or from 35,000,000 in 1880 to 49,000,000 in 1910. In 1880, 29.5 per cent of the population was urban, and in 1910, 46.3 per cent, in 1921 more than half of our people live in cities. It may be remarked that many of the smaller places classed as urban communities are far from being distinctly urban in their characteristics; but there has been at the same time a marked growth and concentration of population in large cities. Thus the number of cities of over 100,000 population increased from 20 in 1880 to 50 in 1910, and the aggregate population living in such cities from 6,000,000 to 20,000,000, an increase of over 200 per cent. The proportion of the total population living in cities of this class in 1880 was 12.4 per cent, or about one-eighth, as compared with 22.1 per cent, or more than one-fifth, in 1910. If, as is indicated by statistics presented later, insanity is more prevalent in urban than in rural communities, some increase of insanity would seem to be an almost inevitable result of the increasing urbanization of the population of the United States. It should be made plain that city life—in and of itself—does not directly lead to an increase in

insanity. These statistics are rather to be explained by the fact that the stress and strain of the larger centers of population serve to develop and bring to the surface those cases of latent and hereditary insanity.

The extension of the practice of placing the insane under institutional care has also had a very great influence upon the statistics. Associated with this are other influences which have likewise contributed to the apparent increase of insanity, or to the increase in the number of recognized and recorded cases, without being indicative of any great actual increase. Among these may be mentioned: increasing average length of life, bringing more people to the "insanity age periods;" advances in diagnostic methods of psychiatry, leading to the detection of mental factors in physical cases; the establishment of dispensaries; the provision of "voluntary" and emergency commitment; and better means of transportation (the automobile for instance), making it possible to bring to the hospital cases in poor physical condition.

So far as an increase of insanity is associated with the growth of cities it may be said that it probably results to a large extent from causes which are preventable or subject to control. Statistics indicate that the difference between city and country as regards the prevalence of insanity is partly accounted for by the greater number of cases of general paralysis and alcoholic psychosis in the urban population. This in itself is a significant fact because these are diseases the causes of which must be regarded as preventable or controllable; and the better-organized work in preventive medicine, in social service, and in hospital and dispensary relief, makes the outlook for prevention in any disease more encouraging in cities than in rural communities. Interest in the possibility of controlling some of the causes of mental disease has developed only very recently, and it is not too

much to hope that considerable progress in that direction may be achieved in the near future.

INSANITY'S THREAT

A medical friend not long ago called my attention to the statistics already noted—to the deduction that the whole population was threatened with becoming insane in a few hundred years—that insanity appeared to be increasing almost three hundred times faster than the population of the country. He was alarmed over the prospects. These statistics all seem to be reliable and up-to-date. These figures and calculations seem to show conclusively that in just 330 years every man, woman, and child in this country will be a raving maniac—there would not even be enough sane persons left to take care of the lunatics—the whole country would have become one vast crazy house.

What is wrong with those statistics? Surely, there is a mistake somewhere; for, no matter how bad the situation may be—it cannot be that serious. There is nothing wrong with the statistics—they are authentic and reliable. There is no doubt, also, that insanity has been tremendously on the increase during the last few generations in both this country and Great Britain. The trouble with my friend's conclusions and the statistics on insanity consists in the overlooking of two vital points when it comes to the interpretation of figures on insanity, and these two points are:

1. We are keeping better books than we used to. We are getting a more complete record of the insane, and more of these unfortunates are year by year being gathered together in public institutions. Things may not be so much worse than they were in the recent past—we are simply waking up to a recognition of the facts.

2. We now classify the insane differently than heretofore. A lot of folk that used to be regarded as merely being a

little "peculiar" are now put down as "insane"—and that makes our statistics look still worse.

Let us be frank and sincere with ourselves. There is no need of making the thing out worse than it is—it is bad enough at best. Even when we have discounted the statistics and made every reasonable allowance, as just suggested, still we must face the stern fact that insanity is steadily gaining on us—it constitutes a real menace—it will jeopardize the nation if nothing is done in the near future to lessen its rate of increase among the American people.

INSANITY AND HEREDITY

The author maintains that insanity is largely hereditary—with the exception of those cases caused by certain diseases and injuries. Syphilis, alcohol, drugs, typhoid fever, and certain other diseases, may produce insanity, by causing brain tumors, diseases, etc., but the vast majority of the insane—those who "go crazy" from the results of love affairs, domestic trouble, business worries, religion—even drink—were born into this world with a through ticket to the insane asylum, and all they needed to cut short their stop-over on the outside was some sort of stress or strain which would serve to develop their latent and inherited tendency to "go to pieces" or "blow up."

Various authorities estimate heredity as responsible for from 35 per cent to 75 per cent of the insanities—and the author is firmly convinced that inherited insanity is responsible for a full half, if not more, of those who now fill our hospitals for the insane to overflowing.

Two types of insanity are now recognized as being especially transmissible by heredity, viz., dementia praecox, a sort of precocious old age, in which the patient (generally young), sinks into a lethargy from which he rarely perma-

nently recovers; and maniac-depressive insanity, an over-excitabile condition in which there are occasional very erratic motor discharges, alternating with periods of depression. "Constitutional psychopathic inferiority, which means a lack of emotional adaptability, usually shows in the family history," of these cases. The common type of insanity which is characterized by mild hallucinations is of less concern from a eugenic point of view.

In general, the present isolation of the sexes at institutions for the insane is fairly satisfactory; the principal problem which insanity presents lies in the fact that an individual is frequently committed to a hospital or asylum, kept there a few years until apparently cured, and then discharged; whereupon he returns to his family to beget offspring that are fairly certain to become insane at some period in their after lives.

NON-HEREDITARY INSANITIES

How much insanity is due to hereditary defects in the germ-plasm and how much is due to disease and other causes? The inquiries of the Census Bureau would indicate that almost 17 per cent of the insane admitted annually to our state institutions are caused by general alcoholic paralysis or alcoholic psychoses. One-sixth of our insanity would thus appear to be directly or indirectly alcoholic in origin.

The author believes that syphilis must be responsible for quite as much insanity (about 16 per cent) as is alcohol; in fact, he believes that some of the cases charged up to alcohol may be more or less due to syphilis. No doubt some cases are caused by both alcohol and syphilis. Suppose we allow that all other causes of insanity — including disease, tumors, accidents, etc., embrace an equal number, about 16 per cent. This would suggest that one-sixth of our insanity was due to alcohol and drugs: one-sixth due to syphilis and its re-

sultant paresis; and one-sixth due to sundry other causes — leaving the balance of 50 per cent as due to heredity — inherent defects in the constitution of the germ-plasm of the parents of these unfortunate individuals.

MARRIAGE LAWS RELATING TO THE INSANE

The laxity of our marriage laws regarding the insane or those tainted individuals who are predisposed to insanity is indicated by the fact that about one-third of the present-day inmates of insane asylums are married. No doubt the vast majority of these married have one or more children, who bear their taint — that is, in the case of at least 50 per cent of our insane, whose ailment is largely hereditary.

The large percentage of single persons among the insane is not to be interpreted as indicating that the single are more liable to become insane than the married. It means rather that the insane, as compared with the normal, are less likely to marry. Some forms of insanity unfailingly act as a natural barrier to marriage. Moreover, in most states the marriage of a known insane person is prohibited by law, and the probability is that most of the insane who have been married were married before insanity outwardly developed.

Our marriage laws are much more effective as regards insanity than they are concerning feeble-mindedness. The great need of improvement lies along the lines of curtailing the mating of those dangerous and defective individuals who appear to be fairly normal on the surface, but who are the carriers of the deadly strains of racial degeneracy.

“GOING INSANE”

How prone we are to overlook the hereditary side of insanity! We explain that Mr. A. has gone insane from worry, business losses, or overwork. Yet thousands worry, suffer great losses, and work hard, and yet show no signs

of nervous breakdown. It would be more correct to say that so-and-so went insane because his brain and nervous system were not strong enough to stand the stresses to which they were subjected. As a matter of fact, insanity seldom or never occurs except where the germ-plasm is defective; unless there is present syphilis or some other definite disease to explain the catastrophe. Also epilepsy, which is so often ascribed to external conditions, is, like imbecility, determined chiefly by the condition of the germ-plasm; and the trivial circumstances that first reveal these defects are no more the real and fundamental cause of these mental upheavals, than the touching of the electric button that opens an exposition is the motive power that propels its vast engines. "Father," says the young hopeful, "may I go skating?" "So far as I am concerned; but you had better ask your mother," replies the father. "No, indeed," puts in the mother, "for I read in the paper the other day of a boy who fell on the ice and had an epileptic fit." Thus does the untrained mind confuse contributing and essential causes. The same is also true of those women who are supposed to have "lost their minds" during the change of life. Women of sound heredity do not "go crazy" as a result of menopause.

We read that a certain prominent citizen has had a "nervous breakdown"—that he has gone to California for a long rest from business cares and other harassments. Next we read that this same prominent citizen has "gone crazy" or committed suicide, and immediately ten thousand neurotic and nervous individuals are seized with the terrible fear that they also will either commit suicide or "go crazy." Whereas, there is little or no danger that either of these things will happen to simple neurotics who do not have a "streak of insanity running in the family."

People who "go insane" in the absence of any specific or organic disease of the brain, are born with the tendency —

they are doomed by heredity — they are the descendants of defective stock — they were mentally insolvent and biologically bankrupt when they were born into the world.

RECURRENT INSANITY

While it is true that many persons are discharged from hospitals for the insane as cured or improved, it is also true that many of them return later with a recurrence of their mental troubles — simply because insanity is a part of their nature — it is inherent in them.

Of the 60,769 persons admitted to hospitals for the insane in 1910, 40,130, or 65 per cent, were reported as first admissions, and 13,914, or 23 per cent, were reported as having been previously in hospitals for the insane; while in the case of 6,715, or 11.1 per cent of the total number, no information covering this question was obtained. The number of persons who had been previously admitted represents about 26 per cent of the total number for which the facts as to previous admissions were ascertained. The figures indicate, therefore, that somewhat more than one-fourth of the persons admitted to hospitals for the insane are recurrent cases. In some cases they had been in an institution for the insane as many as five times or more; many having been committed from two to four times. In some forms of insanity — the serious and hereditary forms — it seems to work out "once insane, always insane," more or less.

The number of persons discharged from hospitals for the insane in the year 1910 was 29,304. Of these 24,241, or 82.7 per cent, were discharged as either improved or recovered; 4,397, or 15 per cent, as unimproved; and 491, or 1.7 per cent, as not insane. No attempt was made to distinguish the "recovered" from the "improved." The reasons why this was not done are stated by the Census Bureau as follows:

There is no standard definition of what constitutes recovery from insanity. Some officials class as such all who show betterment, while others are very chary in describing their patients as having fully recovered. In consequence the percentages of recoveries reported from different institutions vary in an astounding degree. It therefore seemed wiser to group all recoveries under the heading "improved" and avoid the presentation of figures that could not be explained and therefore might lead to wholly unfair comparisons.

Think of the fact that almost 5,000 insane persons (15 per cent of the total number discharged) are annually turned loose on the public "unimproved." These irresponsible beings, if their age is suitable, are in many instances free to marry if opportunity offers itself, or otherwise to become responsible for bringing into this world other beings cursed with these same mental deficiencies.

Of the more than 80 per cent (about 25,000 annually) who are discharged from asylums as "improved" or "recovered," we know that not less than 25 per cent will find their way back into public institutions for the care of the insane, anywhere from two to five times before they die—in the meantime having contributed numerous legitimate or illegitimate offspring to curse the coming generations.

INSANITY AMONG IMMIGRANTS

Of the total number of inmates of insane asylums on January 1, 1910, 28.8 per cent were whites of foreign birth, and of the persons admitted to such institutions during the year 1910, 25.5 per cent were of this class. Of the total population of the United States in 1910 the foreign-born whites constituted 14.5 per cent. It is evident, then, that the foreign born have an unduly large representation in insane asylums. There were, in fact, 405.3 foreign-born whites in insane asylums to each 100,000 in total population; while for the native whites the ratio was 168.7 to 100,000; the number of admissions during the year was 116.3 per 100,000 in

the case of the foreign-born whites, as compared with 57.9 in the case of native whites.

The ratios, however, if regarded as an index of the tendency to insanity among immigrants as compared with the native population are somewhat misleading, for the reason that the difference between the two classes is partly accounted for by the mere fact that the native population includes large numbers of children, while the foreign born comprises comparatively few, most immigrants being past the period of childhood when they arrive in the United States. Of the native white population of the United States 36.5 per cent were under 15 years of age, while of the foreign-born white population only 5.7 per cent were below that age. As indicated by the age statistics, insanity is a defect which, as a rule, makes its appearance only in adult years. Therefore this difference in age is bound to have a marked effect upon the relative number of insane in the two classes, and, other things being equal, would of itself make the percentage of insane much higher for the foreign-born white population than for the native. Appendix A, Table No. 9, makes a comparison of age periods showing what proportion of foreign-born white and the native white in each age group were admitted to insane asylums in the year 1910.

The practice of dumping their insane, criminal, and defective stock on America was early begun by Great Britain, Holland, and other European countries. In the early colonial days the various states had great difficulty in protecting themselves from these undesirable denizens who were landed on our shores in shiploads. So it will be seen that America had more than her just proportion of insane and defective citizens to begin with, while we have done little or nothing to prevent their undue multiplication since we became an independent people.

That our increased insanity is partly due to immigration,

is indicated by the immense and constantly increasing insane population of the state of New York, where most immigrants land. In some cases, people who actually show some form of insanity may slip past the examiners; in the bulk of cases, probably, an individual is adapted to leading a normal life in his native environment, but transfer to the more strenuous environment of an American city proves to be too much for his nervous organization. The general flow of population from the country to large cities has a similar effect in increasing the number of insane.

INSANITY AMONG NEGROES

The 187,791 insane in hospitals enumerated on January 1, 1910, included 12,910 Negroes, and the 60,769 insane admitted to hospitals in the year 1910, included 4,384 Negroes. The Negroes thus constituted about 6.9 per cent of the insane enumerated on January 1, and 7.2 per cent of the insane admitted during the year, while of the total population of the United States they constituted a little over 10 per cent. Taking the country as a whole, therefore, the Negroes in proportion to their number have fewer representatives in insane asylums than the whites.

For Negroes the number of admissions per 100,000 population was 44.6; for the whites it was 68.7. Equally marked is the contrast as regards the ratio of inmates present on January 1 — 131.4 per 100,000 for Negroes as compared with 213.2 per 100,000 for whites.

The fact that the Negroes in the South have a lower ratio of admissions than the whites does not necessarily indicate that insanity is less prevalent in one race than in the other. The difference in the relative numbers admitted to asylums for the insane may be influenced by the local distribution of the two races, by their practice as regards taking steps to have the insane placed under institutional care, and

by the relative sufficiency of the provisions made for caring for the insane of each race. What the effect of such factors may be it is difficult to determine, but it seems probable that they furnish at least a partial explanation of the differences between the two races as regards the proportionate numbers admitted to institutions for the insane. It is furthermore probable that, because of illiteracy, poverty, and ignorance, among the Negroes, cases of insanity, especially those which are forms of senile dementia, are less likely to be diagnosed or detected in this race than among the whites.

SUMMARY OF THE CHAPTER

1. Hereditary insanity is increasing. At last census there were about 250,000 insane in 366 public asylums in this country.

2. This alarming increase in insanity on both sides of the Atlantic is commonly regarded as an evidence of race decadence.

3. In Great Britain the increase in population in fifty-two years was 85.5 per cent; while insanity increased 262.2 per cent during the same period.

4. There is estimated to be about 300,000 insane and feeble-minded in England and Wales.

5. In the United States we have one insane person in the asylums for every 350 population. Estimates give one insane for every 280 population.

6. Statistics throughout the country indicate that insanity is increasing anywhere from two to three times faster than the population.

7. The apparent ratio of the increase in insanity for the last fifty years if kept up in the future, would show the whole population insane by A.D. 2250.

8. The error in our statistics on insanity is due to overlooking of several vital points, viz., better classification, identification, and segregation. Things are bad — but not as bad as they seem.

9. One authority estimates that one person in every 150,

in this country, is either insane or mentally unbalanced, while one person in every 5 is predisposed to insanity by heredity.

10. There is evidence to support the belief that about 1 per cent of the population of England and America is insane or mentally defective.

11. There are 10,000,000 poverty stricken and 4,000,000 actual paupers in the United States.

12. In twenty-five years the ratio of insanity has risen from 1 to 450 of population to 1 for 300.

13. More insanity is found in older communities; less in the newly settled districts.

14. Insanity is more prevalent in the cities. The population is concentrating in the cities and this may be a factor in the increase of mental disorders.

15. Among influences which make it unduly appear that insanity is increasing are: increase in average length of life, better diagnostication, and more general institutional care for such patients.

16. While insanity may not be increasing three hundred times faster than the population (as statistics may show); nevertheless its steady gain constitutes a national threat — a race menace.

17. In the main, insanity is hereditary; but it is also caused by: syphilis, alcohol, drugs, brain tumors, and may follow certain diseases.

18. Those who "go crazy" over love affairs and who "blow up" as a result of business troubles, belong to the hereditary type of mental defectives.

19. Fully one-half, if not more, of all our insanity belongs to the hereditary form. Dementia praecox and manic-depressive insanity are nearly always hereditary.

20. The chief defect in our management of the insane is that we turn them loose (as temporarily cured) periodically, to go back home and reproduce their defective stock.

21. The causes of insanity in this country are, roughly: heredity, one-half; syphilis, one-sixth; alcohol and drugs, one-sixth; and various other diseases (tumors, etc.), one-sixth.

22. Marriage laws relating to the insane — especially dis-

charged patients — are in urgent need of thoroughgoing revision.

23. People do not go insane from passing stress and strain unless they are already "insane carriers" — unless they are the product of, and the carriers of, defective germ-plasm.

24. About one-quarter of those admitted to insane asylums have been there before — they are recurrent cases — having been previously committed from two to four or five times.

25. About 30,000 insane are "discharged" each year; 5,000 unimproved; all of whom may contribute legitimate or illegitimate offspring to the next generation.

26. Not only has recent immigration fed our stream of insanity, but it was liberally stocked up in pre-Revolutionary days by the practice of European countries dumping their insane and defectives on the American colonies.

27. Insanity among immigrants shows unduly high, because of the scarcity of children; while among the Negroes it shows surprisingly low, because few are confined in institutions.

CHAPTER XVI

FEEBLE-MINDEDNESS

FEEBLE-MINDEDNESS has been broadly defined as comprising all degrees of mental defect due to arrested or imperfect mental development as a result of which the person so affected is incapable of competing on equal terms with his normal fellows, or of managing himself or his affairs with ordinary prudence. The feeble-minded, as thus defined, range in mental development from those whose mentality does not exceed that of a normal child of 2 years to those whose mentality is as high as that of a child of 12. The great majority of the feeble-minded are not confined in institutions, but live at large; many are inmates of prisons and reformatories; many others are in almshouses, and some are even confined in hospitals for the insane. Only a small fraction of the feeble-minded are taken care of in special institutions designed for that class, but the development of recent years is in the direction of providing such special institutions. (See Fig. 13.)

DEFINITION OF FEEBLE-MINDEDNESS

Some experts will define a feeble-minded person as one who cannot meet all (save two) of the Binet tests for three years below his own; if he fail in only one he is no longer feeble-minded. But this definition is not quite satisfactory because there are any number of *moral* imbeciles who can answer all but the moral question for their proper age. Probably the best definition of feeble-mindedness would be, "A person who is deficient in some socially important trait,"

and then the class as a whole would include the sexually immoral, the criminalistic, those who cannot control their use of narcotics, those who habitually tell lies by preference, and the truants — those who run away from school or home. If from the class of “feeble-minded” we exclude the sexually immoral, the criminalistic, and the victim of narcotics, we would have left largely the lower grades of defectives; on the other hand, if we include the morons we would have an enormously enlarged group of degenerates.

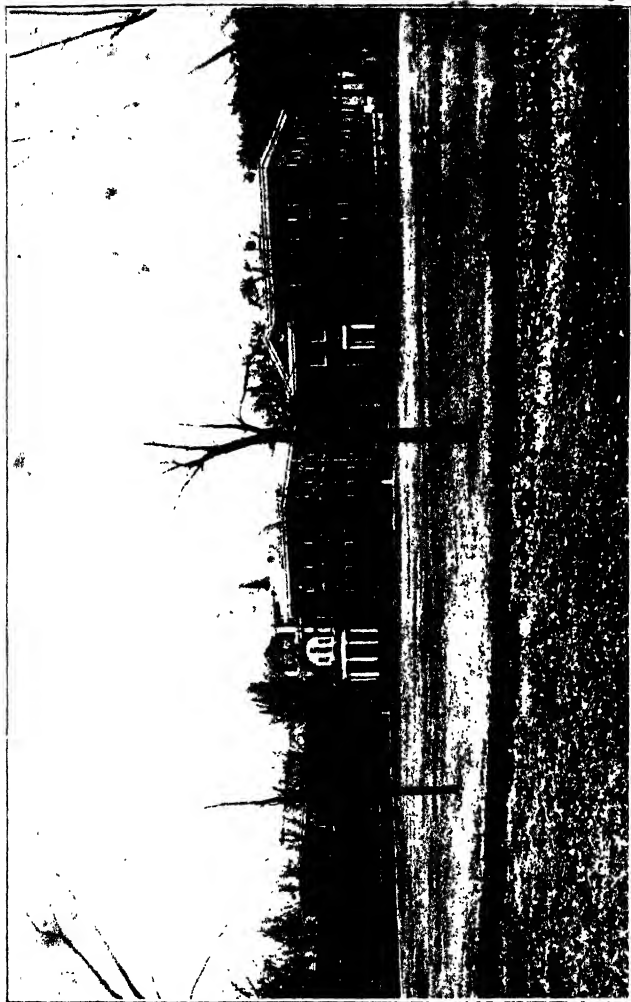
The definition proposed by the English Royal Commission is in point: “A ‘feeble-minded’ person is one who can make his living under favorable circumstances, but who is incapable of competing on equal terms with his normal fellows, or of conducting himself with ordinary prudence.” But there are any number of persons who cannot compete on equal terms with their normal fellows, who are not feeble-minded; they may be only dull, backward, or retarded.

Healy describes three types of mental abnormality — mental defects, mental aberrations, and mental peculiarities. Sometimes we cannot sharply divide these classes. The mental defective may have aberrational states superadded; between mere mental peculiarities and real aberration, differentiation at times is often impossible. The main types stand out with great clearness, but indefiniteness for classification besets the border lines.

To make clear the subclasses of mental abnormality is the purpose of the accompanying scheme. (See Fig. 14.)

The best classification of defectives is that adopted by the American Association for the Study of Feeble-mindedness in 1910. This body of experienced scientific workers agreed to use the word “feeble-minded” as a generic term under which there should be the subclasses: idiots, imbeciles, and morons.

According to the works of Goddard and others, defectives



No. 13. Typical institution for the feeble-minded

who are able to get through the Binet test for 12 years are practically never to be found in institutional life. That is to say individuals of mental ages above 12 are at least in some degree regarded as socially acceptable.

The American Association has set forth the following practical scheme of diagnosis: Idiots are those who are able to do the Binet mental tests up to the level of the normal child of 2 years; imbeciles are able to do the tests performed by a normal child between the ages of 2 and 7 years; morons are those who equal the mental performance of a child between the ages of 7 and 12 years.

Idiots.—The group of individuals properly designated under modern nomenclature as idiots rarely, if ever, are criminals. In practically all classes they are found so intolerable socially on account of their mental defect that they are early segregated in public institutions.

Imbeciles.—The middle grade of feeble-minded, imbeciles, are more frequently met with, but are not at all numerous.

Morons.—Of much more importance, so far as society is concerned, is the upper grade of feeble-minded, the class of the morons. As we go up in the scale of mentality we naturally find more ability to make trouble in the social body.

FEEBLE-MINDEDNESS IN THE UNITED STATES

In connection with the population censuses from 1850 to 1890, inclusive, the attempt was made to enumerate all the mentally defective in the general population. The methods adopted in different years were not uniform, and the results cannot be regarded as complete or comparable. In case of the feeble-minded the comparability of the returns is also affected by the fact that from 1850 to 1880 the enumeration, according to the terms used, covered chiefly, if not entirely, those whose idiocy or imbecility was apparent. With increasing study of the defective classes, however, there arose

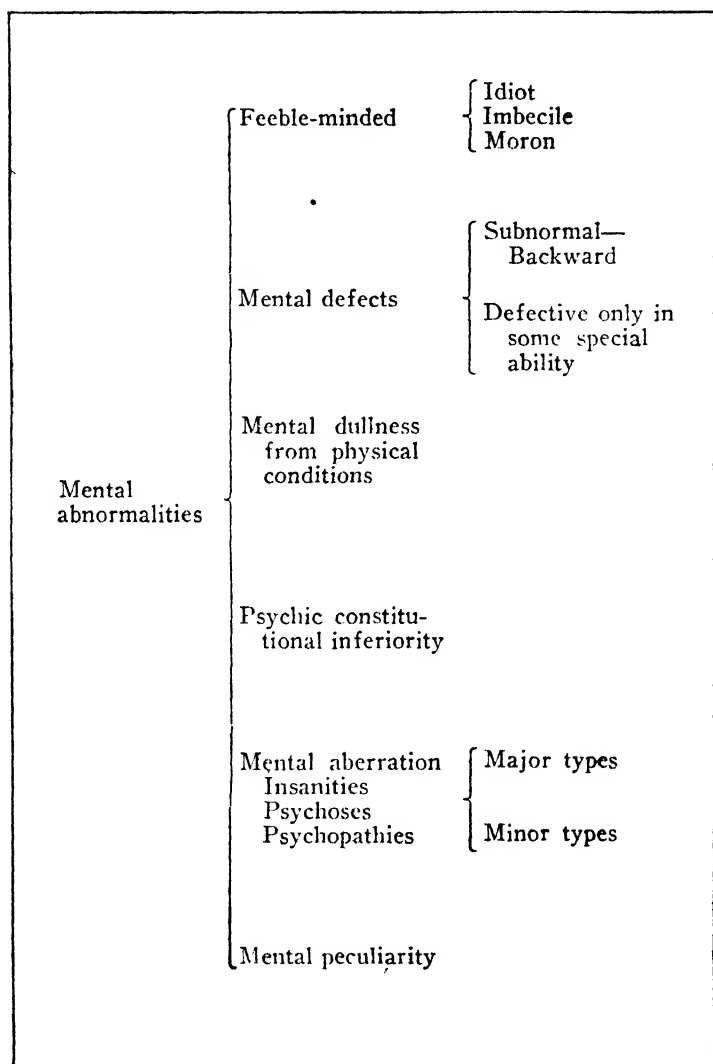


Fig. 14. Scheme of classification of mental abnormalities
(After Healy)

a conviction that there were many on the borderland of mental deficiency, who, though not entirely helpless or dependent, were possibly an even greater menace to society than those who were. They were evidently not idiots, in the ordinary acceptance of the word, and the term "feeble-minded" was adopted in the report for 1890 and has been used ever since. After that time, however, no general enumeration of this large and ill-defined class has been attempted by the Bureau of the Census. In 1904 and again in 1910 the census was restricted to the inmates of special institutions for this class.

An important factor affecting comparisons of different periods is the change that has taken place in the general methods of care for the feeble-minded. Formerly almost all of this class under institutional care were in almshouses or in asylums for the insane. As late as 1890 only sixteen states had provided separate institutions for the feeble-minded, and the number of such institutions was only twenty-four. In 1904 the number of institutions had increased to forty-two, and the number of states making such provisions was twenty-five. In 1910 there were sixty-three institutions reported by thirty-one states.

At present there are few states which make no special provision for this class of defectives.

The effect of these conditions upon the statistics is apparent. In the 1890 census the institutional population, enumerated as feeble-minded, included 5,254 in special institutions and 2,469 in hospitals for the insane; and, in addition to these, 7,811 inmates of almshouses were returned as "idiots," making a total of 15,534 feeble-minded, or idiots. In 1904 the number in special institutions had risen to 14,347 and in 1910 to 20,731. The 1904 and 1910 censuses of the insane in hospitals made no separate enumeration of the feeble-minded inmates of those institutions, nor was there

any record of those in reformatories or other correctional institutions; but the 1904 report on paupers showed 16,551 inmates of almshouses classed as feeble-minded, which number was reduced in the report for 1910 to 13,238. On January 1, 1904, a total of 30,898 feeble-minded persons were either in special institutions or in almshouses, and on January 1, 1910, a total of 33,969.

YEAR	FEEBLE-MINDED		
	In special institutions	In almshouses	In hospitals for the insane
1910.....	20,731	13,238	†
1904.....	14,347	16,551	†
1890.....	5,254	*7,811	2,469

*Not reported.

†Includes only those classed as "idiots."

Less than 10 per cent of our feeble-minded population is confined in our colonies or institutions for the feeble-minded. The state of Minnesota cares for one feeble-minded person in its large colony for the feeble-minded to every 1,281 persons in the general population of the state. The corresponding figures for Iowa are 1 to 1,504; for Indiana 1 to 2,207; for Kansas 1 to 3,493; and for Illinois 1 to 3,883. Missouri, on the other hand, cares for only one feeble-minded person to every 6,977 in the general population.

As will be seen, it is quite impossible to ascertain the actual number of feeble-minded in this country at the present time — we know about those only in state institutions.

In 1900 Great Britain reported having 1,527 imbeciles per 1,000,000 of population.

There are probably no less than 300,000 out-and-out feeble-minded persons in the United States — and this does not take into consideration the enormous and unknown number of individuals whose taint of feeble-mindedness is latent, but whose tainted germ-plasm is sure to transmit its defective strain to succeeding generations. Some of these latent

or masked cases, as individuals, may show fair mental development, and are, therefore, in many respects, all the more dangerous and deceptive to the rest of society.

Almost 50,000 feeble-minded and mentally deficient individuals were turned up by the examinations of the selective military draft. Dr. Pierce Bailey, Chairman of the New York State Commission on Mental Defectives, is authority for the statement, that nervous and mental diseases numbered 60,000, and ran especially high among the immigrant classes of New York. Medical authorities believe that the general population will show almost twice the amount of feeble-mindedness that was shown among those drafted between the ages of 21 and 31.

The number of inmates in the American institutions for the feeble-minded in 1914, according to the report of the Commissioner of Education, was 28,878. Of these 916 were in private institutions and 27,962 in state institutions (the state institutions, however, include two villages for epileptics). How many feeble-minded persons are at large in society and how many are confined in improper types of institutions is not known. The estimates frequently hazarded are mere conjectures. Indeed, we are lacking scientifically accurate data to show what percentage of the inmates in the public and private institutions are actually feeble-minded.

STANDARDS OF FEEBLE-MINDEDNESS

Who is feeble-minded? Langmead in discussing this question says: "I do not think that we can label a child as defective in mind by a fixed test, or set of tests, no matter how carefully thought out. . . . Judged by them alone, the minds of many children who are not mentally defective will be weighed in the balance and found wanting."

Speaking of the Binet scale, Healy declares: "This scale, it may at once be said, is to be fairly employed merely

as a scheme for preliminary diagnosis, and like many other useful ideas has been given exaggerated importance, as if by it one were capable of measuring all the vast intricacies and possibilities of the human mind, defective and normal."

We must conclude, therefore, that, no matter how valuable our mental tests may be—and we do not wish to minimize their real value—it has not been "mathematically demonstrated" that it is a "marvel of accuracy" and that it will "tell us to a nicety just where a child stands in his mental capacity." All we are justified in saying is that it possesses a fair degree of accuracy and that it is of considerable value for the estimation of the general intelligence. Mental tests are merely "tools" designed to aid in making a diagnosis.

The limit of feeble-mindedness is not determined primarily by the mere fact of the accuracy of a measuring scale of intelligence, but by social criteria, by the degree of intelligence required by a person to make his living and to conform to the laws and conventions of the social levels in which he finds himself.

Binet's associate, Simon, made these statements:

We mean by the term "idiot" an individual whose intellectual development is that of 2 years or under. We mean by the term "imbecile" an individual whose intellectual development corresponds to that of a child between the ages of 3 and 7 years. And finally by the term "feeble-minded" (*débile*) we mean an individual whose intellectual level, while superior to that of a child of 7 years, is nevertheless below the average development of an adult. This latter degree of development, as I have said, is still inadequately determined. Provisionally it might be proposed to fix at 9 years the upper level of mental debility. . . . A development equivalent to the normal average at 9 years of age is the minimum below which the individual is capable of getting along without tutelage in the conditions of modern life. . . . Nine years is the intellectual level found in the lowest class of domestic servants, in those who are just on the border of a possible existence of economic independence; it is, on the other hand, the highest level met with in general paralytics who come under asylum care on account of their dementia.

While all authorities are not agreed in every respect as to the standard for determining feeble-mindedness, we think the standard adopted by the American Association for the Study of Feeble-mindedness — the one already presented — is one designed acceptably to serve all practical purposes.

ORIGIN OF FEEBLE-MINDEDNESS

A British commission for the study of this subject came to the following conclusions respecting the probable origin of feeble-mindedness:

1. That both on grounds of fact and theory there is the highest degree of probability that feeble-mindedness is usually spontaneous in origin — that is, not due to influences acting on the parent — and tends strongly to be inherited.

2. That, especially in view of the evidence concerning fertility, the prevention of mentally defective persons from becoming parents would tend largely to diminish the number of such persons in the population.

3. That the evidence for these conclusions strongly supports measures, which on other grounds are of pressing importance, for placing mentally defective persons, men and women, who are living at large and uncontrolled, in institutions where they will be employed and detained; and in this, and other ways, kept under effective supervision so long as may be necessary.

A little study will render it evident that one of the essential defects of the feeble-minded person, the idiot, and the imbecile, is lack of memory, lack of association of ideas. They are unable to profit, like the normal individual, from experience. This defect of memory may be, and usually is, general, so that the individual is able to learn very little; or the defect may be limited to some particular, as in case of those who are unable to acquire the code of conventional morals prevailing in the community in which they live.

The truth that the higher intellectual faculties are less developed in the feeble-minded than the lower faculties is due entirely to the fact that the former can be acquired only by people whose mental powers are more or less normal. In effect and in fact the feeble-minded person is an instance of reversion to a prehuman mental state. Judged by the human standard, every dog and monkey is an imbecile. But the reversion of the imbecile is not complete; for, while he has lost part of his power of profiting by experience, he has regained no part of the lost power of being properly guided by instinct; he is, therefore, correspondingly helpless as compared to a lower animal. On the other hand, the instincts (e. g., the sexual) which normal human beings still possess often appear unduly prominent — simply because he cannot learn to control them.

FEEBLE-MINDEDNESS AND HEREDITY

There is every reason to believe that at least two-thirds of the feeble-mindedness in this country is directly due to heredity.¹ This is not only a serious problem for the present generation, but one that is even more serious for all future generations, because of the fact that a very great number of these feeble-minded of the present generation will surely transmit their defects and degeneracy to a large per cent of their descendants.

Feeble-minded persons from sound stock, whose arrested development is due to scarlet fever or some other severe disease of childhood, or to accident, are of course not to be feared in this connection.

Feeble-mindedness is a mental defect which is highly hereditary. Some eugenicists have even thought it to be a

¹ *Feeble-Mindedness*, by Henry H. Goddard, director department of research, Training School for Feeble-Minded Children, Vineland, N. J. The Macmillan Company, New York, 1914.

true "unit character." When two inherently feeble-minded persons marry, all of their offspring, almost without exception, are destined to be feeble-minded. The feeble-minded are never of much real value to society—they never present such instances as are found among the insane, of persons with some mental lack of balance, but who sometimes belong to the order of geniuses or near-geniuses.

Tredgold, the well-known English authority, believes that in the case of mental unsoundness, such as lunacy, idiocy, imbecility (feeble-mindedness), at least 90 per cent of these cases may be traced to heredity.

Mr. David Heron, and others, have shown that while there has been a marked decline in the birth-rate of the population in general, the diminution is almost entirely confined to the healthy and thrifty class. In a section of population numbering 1,250,000 persons, thrifty and healthy artisans, the decline in the birth-rate in twenty-four years, 1880 to 1904, was over 52 per cent, or three times that in England and Wales as a whole.

Study of a large number of families of the working class of incompetent and parasitic character revealed that the average number of children to the family was 7.4, while in thrifty and competent working families the number was 3.7. In other words, the incompetent and defective classes are multiplying far more rapidly than are the competent and efficient. Heredity explains most of our mental defectiveness and moral degeneracy—our racial decadence; and the control of heredity—the regulation of the offspring of these defectives—presents the only avenue of hope for dodging the inevitable social catastrophe toward which we are certainly headed, if no preventive measures are set in operation in the near future. The defectives are doubling their numbers each generation while the desirables are not quite reproducing themselves.

ILLUSTRATION OF THE INHERITANCE OF FEEBLE-MINDEDNESS

Goddard has recently published several family histories showing the inheritance of feeble-mindedness. One of the most significant of these — significant both socially and eugenically — is summarized as follows: "Here we have a feeble-minded woman who has had three husbands (including one 'who was not her husband') and the result has been nothing but feeble-minded children." The story may be told as follows: This woman was a handsome girl, apparently having inherited some refinement from her mother, although her father was a feeble-minded, alcoholic brute. Somewhere about the age of 17 or 18 years she went out to do housework in a family in one of the towns of this state (New Jersey). She soon became the mother of an illegitimate child. It was born in an almshouse to which she fled after she had been discharged from the home where she had been at work. After this, charitably disposed people tried to do what they could for her, giving her a home for herself and her child in return for the work which she could do. However, she soon appeared in the same condition. An effort was then made to discover the father of this second child, and when he was found to be a drunken, feeble-minded epileptic living in the neighborhood, in order to save the legitimacy of the child, her friends (sic) saw to it that a marriage ceremony took place. Later, another feeble-minded child was born to them. Then the whole family secured a home with an unmarried farmer in the neighborhood. They lived there until another child was forthcoming which the husband refused to own. When, finally, the farmer acknowledged this child to be his, the same good friends (sic) interfered, went into the courts and procured a divorce from the husband and had the woman married to the father of the expected fourth child.

This proved to be feeble-minded, and they have had four other feeble-minded children, making eight in all born of this woman. There has also been one child stillborn and one miscarriage.

This woman had four feeble-minded brothers and sisters. These are all married and have children. The older of the two sisters had a child by her own father, when she was 13 years old. The child died at about 6 years of age. This woman has since married. The two brothers have at least one child, of whose mental condition nothing is known. The other sister married a feeble-minded man and had three children. Two of these are feeble-minded and the other died in infancy.

The parental ancestry of this unfortunate woman is hardly less interesting. All told, this family history, as far as it is known, includes 59 persons; the mental character of 12 of these is unknown; 10 died in infancy, or before their characteristics were known; of the remaining 37, 30 were feeble-minded.

THE TAINTED STREAM OF LIFE

Of all the calamities that can befall a human being feeble-mindedness is, undoubtedly, the worst. From most misfortunes it is possible, in some degree, to recover; with many of the rest one may at least continue to live without detriment to the race. To be feeble-minded simply means to hark back to the level of our animal ancestors, without the compensation of regaining their instinctive powers. The animal is provided with a bundle of instincts which tell him what to do in all the ordinary emergencies of life. The human species, in its development, has largely lost this biologic instinct, and has gained, instead, the power of intelligent choice and the ability to learn by experience and by imitation.

Modern science is making clear to us that a large part of

the criminality and immorality of the world, together with much of the alcoholic excesses are due to this inherited taint of feeble-mindedness. Prisons, almshouses, and houses of shame owe their population in no small degree to this bitter curse. How long will it be before society will learn to protect itself against such poisoning of the stream of life?

There is one type of mental weakling, known as the Mongolian idiot, which may arise right out of the heart of an apparently sound family. But the number of these is comparatively small; while the number of feeble-minded who are feeble-minded because of their heredity is dishearteningly and astonishingly large. Every school has its backward children, and every little community has its silly boys and half-wit girls; and such defectives seldom live long lives without leaving behind their tainted and degenerate offspring — no small proportion of whom are likely to be illegitimate. Against this fouling of the stream at its source, society must sooner or later protect itself — or face extinction as a highly civilized and progressive organization.

It is alleged that 30 per cent of the general population are carriers of neuropathic defects, that 15 per cent of the present generation produces 50 per cent of the next generation, and that this producing minority represents the poorer, lower, or eugenically inferior elements of the population. Tredgold claims that 80 per cent of feeble-mindedness is due to a "neuropathic inheritance" while Goddard holds that at least two-thirds of the feeble-minded have inherited their defect. Without attempting to determine whether these estimates are accurate, it is at least true that heredity is one of the most potent factors in the production of feeble-mindedness and of racial degeneracy.

For distribution of the feeble-minded in the United States, see Appendix A, Table No. 10.

In interpreting these tables, it is to be remembered that it

does not include feeble-minded persons in the general population, but only those either in institutions specifically for this class, or in almshouses. Accordingly, it is indicative mainly of the degree to which the states have emphasized institutional care for this class of defectives, and the evident disproportion between the groups of states does not indicate the actual situation so far as the number of feeble-minded in proportion to the population is concerned. The small numbers and the low rate per 100,000 of population in the southern and western divisions by no means prove that feeble-mindedness is not proportionally as prevalent as in the eastern and northern divisions, but merely that the states of those sections have not yet faced the problem of dealing with the situation. That the three great southern divisions should report but six feeble-minded Negroes in special institutions, all in the one state of Tennessee, is simple evidence that the southern states have made practically no provision for the institutional care of this class of defectives. As just pointed out, the South and West have been backward in caring for the feeble-minded.

Most of those inmates who were discharged from institutions for the feeble-minded in 1910 were intrusted to the care of relatives or friends, only 55 being reported as discharged to "keeping of self." As regards the condition of those discharged, 612, or about 61 per cent were reported as improved, which includes those who were cured, if any, and 280 as unimproved, while for 117 no report was obtained.

In the case of those feeble-minded persons "discharged" it requires but a small exercise of the imagination to picture the direful consequences on future generations of the descendants of those "discharged" but inherently defective inmates of public asylums. There is no law to prevent their marriage and reproduction, and even if we had laws prohibiting the marriage of such "discharged" defectives even such desirable laws would not prevent the illegitimate off-

spring of such undesirable citizens coming into the world to prove a curse both to themselves and untold numbers of others belonging to unborn generations.

PHYSICALLY DEFECTIVE FEEBLE-MINDED

Table No. 8, Appendix A, brings out the significant fact that a large proportion of the feeble-minded are also physically defective — that is blind, deaf, crippled, maimed, or deformed, paralytic, or epileptic. Out of a total of 20,731 persons enumerated on January 1, 1910, in institutions for the feeble-minded, 5,246 or 25.3 per cent, are reported as thus defective, while of the 3,825 admitted to the institutions during the year, 910 or 23.8 per cent were defective.

It is of some interest to note that the proportion reported as physically defective was considerably smaller in 1910 than it was in 1904. Based on the total number enumerated at the beginning of the year and admitted during the year, the percentage of physically defective declined from 30.2 in 1904 to 25.1 in 1910. The decline took place principally in the percentage of epileptics, which was 17.8 in 1904 and 11.6 in 1910, and probably reflects the tendency to make special provision for the care of epileptics in colonies or separate institutions.

THE DOCTOR'S ATTITUDE

We are turning heaven and earth upside down by philanthropic effort, medical science, and Christianity, to save all the weak elements of our civilization — soup kitchens, special schools for backward children, visiting nurses, free dispensaries — and I believe in these things — if it does not do the unfortunates any good, it certainly does us a lot of good; for, I believe it is the doctor's business to try to save every child that is born into the world. I do not take any stock in this nonsense, that doctors should let defective babies die at birth. If a baby is here and a doctor can save its life, it is his busi-

ness to do it. I do not believe that any physician should ever take the power of life and death in his own hands.

But, if we physicians represent the civilized and Christianized sentiment of modern society in protecting the weak and giving them a fair and square deal — if the physician steps in and saves that baby at birth — and then it grows to adolescence, and shows that it is manifestly defective and degenerate and we know that it can reproduce only its kind; then we maintain that society owes it to the medical profession on the one hand, and to itself on the other, to say in substance to this defective child: "We will do our very best for you, you shall be educated or trained up to your fullest capacity; and then you shall be either segregated or sterilized. We will do our full duty by you, but there must be no more like you."

It is a biological crime to allow defectives and degenerates to reproduce themselves.

Delivering a lecture in a Wisconsin town not long ago, the author was shown around the new high school with its manual training equipment — a wonderful institution. In one room a young woman was teaching five little deaf-mutes, three of them born of one father and mother, both parents being feeble-minded paupers. They wanted to marry and the people said: "Let them get married and settle down." They have a fourth child coming and it is also sure to be a deaf-mute, because, when the feeble-minded mate with the feeble-minded, the offspring are practically 100 per cent defective or feeble-minded. If one side is normal and the other affected, then it operates somewhere near the Mendelian ratio of 3 to 1, or 75 per cent of the total affected, and 25 per cent apparently normal — but carriers of the defective strain over into the next generation.

There are a lot of things we do not know about breeding and about heredity, but there are some things we do know,

and the time has come to do something, to put into practical working the light and information we possess.

SUMMARY OF THE CHAPTER

1. Probably the best definition for feeble-mindedness is "a person who is deficient in some socially important trait."

2. Persons are commonly regarded as being feeble-minded when they fail to meet all (save two) of the Binet tests for three years below their own.

3. The English definition is: "One who is incapable of competing on equal terms with his normal fellows, or of conducting himself with ordinary prudence."

4. We use "feeble-mindedness" as a general term embracing mental defectiveness in general; and specifically including the subclasses of idiots, imbeciles, and morons.

5. Idiots are those who can do the Binet tests up to the level of a normal child of 2 years.

6. Imbeciles are those who do the Binet tests for the normal child between 2 and 7 years.

7. Morons are the ones who do the tests for the normal child up to 12 years of age.

8. There are only sixty-three institutions for the feeble-minded in thirty-one states. The rest of this class is confined in almshouses and insane asylums.

9. At the last census there were 20,731 feeble-minded in special institutions and 13,238 in almshouses. There are probably no less than 300,000 in the United States.

10. Great Britain reports 1,527 imbeciles per 1,000,000 of population; and over 50,000 feeble-minded were turned up by the recent military draft in America.

11. Valuable as are the Binet tests, they cannot be regarded as infallible in the estimation of human intelligence and the diagnostication of feeble-mindedness.

12. Feeble-mindedness is largely hereditary, and can thus be effectively controlled by state regulation.

13. The central defect of the feeble-minded is lack of memory, deficient association of ideas — inability to profit from experience and reason from cause to effect.

14. The lower grades of feeble-mindedness represent a

reversal to lower and primitive biologic types; but, unfortunately, their corresponding instincts are largely absent.

15. Authorities (Goddard and others) believe that not less than two-thirds of feeble-mindedness in this country is hereditary.

16. Arrested mental development as a result of scarlet fever or other diseases and accidents is not transmissible by inheritance.

17. When two feeble-minded persons marry — practically all of the offspring are destined to feeble-mindedness.

18. An English authority (Tredgold) thinks that 90 per cent of mental defectiveness is hereditary.

19. The recent decline in birth-rates (52 per cent in twenty-four years) in this country and England is among the more desirable classes; the defective classes show no decrease.

20. One survey shows 3.7 children per family among the better classes; 7.4 among the undesirable citizens.

21. The study of numerous strains of defective stock shows how unfailingly these defectives pour their accursed germ-plasm on down through their progeny.

22. Feeble-mindedness is the consummate curse of the human race. It means to hark back to the primitive level of our prehistoric ancestors without the compensation of their instinctive faculties.

23. Much of the world's criminality, immorality, pauperism, and drunkenness is due to inherited feeble-mindedness.

24. Thirty per cent of the general population are carriers of this hereditary defectiveness; and 15 per cent (the less desirable) of the present generation produces 50 per cent of the next.

25. Each year hundreds of inmates of the institutions for the feeble-minded are "discharged" for various reasons — to go out and reproduce their kind.

26. Even laws preventing the marriage of "discharged" insane and feeble-minded persons would not control illegitimate offspring.

27. Many of the feeble-minded are also physically defective — blind, deaf, crippled, deformed, epileptic, etc.

28. Physicians are a blessing to the present generation; but they are preserving and prolonging the lives of the de-

fective classes, which are destined to curse all future generations, if nothing is done to prevent further reproduction of these defective strains.

29. It is a biologic crime to allow the manifestly defective and degenerate to reproduce themselves.

CHAPTER XVII

THE MORON PROBLEM

HAVING given consideration to the less serious nervous disorders, and, in the preceding chapter, considered certain phases of feeble-mindedness, we must now turn our attention to the more troublesome and the more dangerous element of the whole feeble-minded class—the morons—the more intelligent and, therefore, more unsocial group of defectives and delinquents.

HEREDITY A STRONG FACTOR

“In cases involving illegitimate children, 60 per cent of the girls are mentally defective”—they are largely morons. This is an important discovery, as everyone realizes how often adopted children go wrong. It upholds our theory that heredity is the intrinsic cause of feeble-mindedness, while environment is but an extrinsic cause. Of the prostitutes examined in the Chicago Morals Court, 84 per cent were found to be subnormal mentally.

One interesting fact brought to light was that the lower the mentality the earlier the boys get into the toils of the law. “Nearly all of them are habitual cigarette smokers, and a small percentage use cocaine and morphine.”

Dr. Hickson says that he is more and more convinced that psychopathy determines crime and that intelligence merely affects the nature of it. Concerning the criminal tendencies of the defective this physician says: “We are therefore able to predict that with the exception of the lightest grades of dementia praecox and the higher grades of the feeble-minded,

who make up the occasional criminal, that the others are all marked for slaughter; that they cannot adjust themselves to a normal environment."

Mental defectiveness (moronism) is hereditary and constitutional, and consequently not amenable to our preachings, asylums, hospitals, reformatories, penitentiaries, etc. We must ever bear in mind that each year a new quota of defectives is born with statistical regularity. They pass through the hands of their parents, then the pedagogues, the theologians, the physicians, the social workers, the employers, the courts, the prisons, and back on society, each one in turn passing them up to the next, and no one willing to acknowledge their impotency in the face of this plague of mental defectiveness.

DEFINITION OF MORONISM

When we come to study the moron it will be necessary to define the term — probably wise to define a number of associated terms in this connection, so that the reader may gain an idea as to just where the moron comes in the long scale of nervous defectives and mental degenerates.

Dr. W. J. Hickson, of Chicago's Municipal Court Psychopathic Laboratory, offers the following definitions of idiot, imbecile, moron, and sociopath:

1. *Idiot*.— Person having mentality equivalent to that of a 1 to 3 year old child.
2. *Imbecile*.— Adult with 3 to 8 years mentality.
3. *Moron*.— Mentality of from 8 to 12 years.
4. *Sociopath*.— Mentality above that of normal 12 year old, but so defective that it is not able to maintain individual independence.

This group of subnormal and abnormal persons — taken as a whole, may be called "feeble-minded," "half-wits," etc., and as such have already been discussed in the preceding

chapter, but at this time we desire to classify and study the morons, or sociopaths.

The author would classify — roughly — all subnormal persons with a mentality of 8 years and above as morons, those ranging from 8 to 12 years as "low-grade" morons, and those ranging from 12 years up to nearer normal as "high-grade" morons, or sociopaths. It should be remembered that the simple feeble-minded individual makes little trouble for society. It is the feeble-minded person subject to *emotional disturbances* at varying intervals who lapses into vice, violence, and crime.

MORON STATISTICS

It is estimated that Illinois has about 25,000 feeble-minded. Of this number only about 2,000 are under proper supervision or restraint. Illinois ranks twenty-third among the states in its care for morons. Massachusetts leads; then come Ohio, Minnesota, and Iowa. There are thought to be about 400,000 of this defective type in the United States.

British statistics say that there is one moron for every 217 people in England.

Between 2.5 and 3 per cent of the men examined for the army were of the moron or feeble-minded type. Men were accepted for foreign service who measured mentally up to 10 years, and for domestic service up to 8 years.

There are only two remedies for these alarming conditions, isolation or segregation, and sterilization. It is maintained that the latter does not prevent criminal assaults; and on the whole segregation in supervised colonies seems to present the ideal method of handling these higher grades of feeble-mindedness or moronism, as at least two-thirds of all these cases are hereditary. Isolation during the childbearing period of all morons would in thirty-three years, I believe, practically solve this problem. It is the only thing to do, but at present

we have no places for such isolation. Our first business should be to provide such places.

Our present system of handling morons and other high-grade defectives and degenerates is highly extravagant. Our system of handling defective criminals is extremely costly in both a financial and a social way. Let us take the figures offered in connection with the sentencing of 1,536 defendants to the House of Correction in the Boys' Court of Chicago. This monetary expense is placed at \$1,845,600. This means that it actually costs about \$1,200 to send a boy to the House of Correction. Would it not pay better to put this money into the more scientific program of permanent isolation for these defectives who are potential criminals?

"BACKWARDNESS" AND "DULLNESS"

The out-and-out moron must not be confused with the "backward child." Many youths are "dull" from physical causes alone. In many cases it is impossible to determine whether the apparent "backwardness" or "dullness" is inherent or due to some physical disorder. With the removal of the physical conditions, many of these individuals will show marked improvement. Physical causes include general poor physical conditions, overuse of narcotics and stimulants, bad sex habits, arrested development, and epilepsy. It should be remembered that epilepsy may be associated with anything from supernormality to idiocy and insanity, and that sometimes an apparent mental defect may clear up under successful treatment for this disease. Without a proper and competent examination, we must not diagnose apparent "backwardness" and "dullness" — even stupidity — as moronism. Only those defective individuals who are such from heredity are to be regarded as falling into the class of morons. And it should be remembered that it is the moron who constitutes the potential criminal class.

CONSTITUTIONAL INFERIORITY

Psychic constitutional inferiority may be recognized by chronic abnormal social and mental reactions to the ordinary conditions of life, on the part of one who cannot be classified in any of the groups of the insanities, neuroses, or mental defectives.—Healy.

The general characteristic of the constitutionally inferior is abnormal reaction to some of the ordinary stimuli of life. Unusual emotional reactions are almost universal in the members of this class. They are often eccentric, selfish, irritable, very suggestible, and easily fatigued. They have a general incapacity for doing things. They may be slightly defective in intelligence or have light, specialized defects of ability, but very often tests reveal neither defect nor peculiarity. Indeed some members of this class may be regarded as distinctly bright, even geniuses, although weak in power to meet the steady demands of the world.

On the functional side these individuals are notoriously subject to "general nervousness." "Specifically, we may find tremors, facial or other tics (habit spasms), abnormal movements of the eyes, headaches, little attacks of dizziness, enuresis, prolonged throughout childhood, and so on." The organs of the special senses are particularly apt to show signs of inferiority; defective vision is very common.

It is undoubtedly true that most of these constitutional inferiors may be regarded as degenerates, but many of the so-called degenerates belong to other classes.

The treatment of the constitutionally inferior resolves itself down to very careful oversight and patient education, particularly during the years of adolescence. Permanent colonization is needed for most of them.

DEMENTIA PRAECOX

Of the total number of mental defectives examined in recent years at the Psychopathic Laboratory of the Munici-

pal Court of Chicago, nearly 700 were found to be suffering from dementia praecox. Few of this group, according to the laboratory findings, can be reformed. A specific study of eighty-five individual cases, in which the defendants were held to the grand jury and later sent to the Pontiac Reformatory from the Criminal Court, shows that all had been former offenders — some of them having been charged with twelve offenses. In one Pontiac case the boy defendant was indicted on twenty-three holdup and larceny charges. He was of average intelligence, with the exception of having dementia praecox.

Dementia praecox is really a form of insanity — usually making its appearance around the time of adolescence; but also showing up sometimes at a later time in life. The disease takes on various forms, and the evidences of actual insanity may not be plain at first. The early signs of this disorder which bring individuals suffering from it so frequently to the notice of police officials, visiting nurses, social workers, etc., are often those of extreme shyness and fear. Sufferers are almost always males. The young man dislikes to go out-of-doors, or meet strangers. He will not look for a job — he shrinks from meeting a prospective employer. He seems utterly ashamed of himself and his own shortcomings, and may hide even from his own family. They often resort to violence when coercion is attempted. Variations in the form of excitement, together with utter dullness, may appear during the course of this disease.

One feature of importance in the evolution of this disease is the practice of masturbation. With astonishing frequency cases of dementia praecox indulge excessively in bad sex habits. This is so noticeable that it is often difficult to convince parents that the disease itself is not caused by this practice. The idea of suicide is frequently entertained in cases of dementia praecox.

PROPOSED MORON COLONY

All experts in juvenile crime are agreed that the ordinary processes of criminal prosecution are not applicable to these mentally subnormal offenders. They are equally agreed that the state-managed colony or farm is the ideal method of handling these defectives. Such a colony would not only materially reduce crime but would also reduce the police force of any great city, thus benefiting from such an arrangement, to such an extent as to contribute an enormous sum annually toward creating and maintaining such a farm-colony for these defectives.

In such a colony these morons and other subnormals would be 60 to 70 per cent efficient, and the institution would be at least two-thirds self-supporting. It is much more costly to have these fellows around loose, holding people up, breaking into stores, and attacking young girls. They have the minds of 10 to 12 year old children, and all the instincts of adults. "They have no insight or foresight, and they try to provide for themselves by direct means, whereas we — the average or normal individuals — adopt more roundabout methods of making a living, as someone has said, 'We are the more clever criminals.'"

The laws should be changed. Under the German code, if mental disease is proven, there is no criminal deed committed. The judge turns the prisoner over to the psychiatrist. It means a big saving in the machinery of the law and saves the befuddling of the juries by so-called "expert" testimony.

"A moron can never safely live in a community. They must be isolated, segregated, and under constant supervision. We have in this country excellent commitment laws based on the English code, but there is no provision made for places to commit them."

We believe that the most important legislation now pending

in this country is to provide adequate farm-colonies for these moron defectives, as some states have begun to provide the long-needed epileptic colonies.

THE "FEEBLY INHIBITED"

While many of the victims of violent temper — those individuals who greatly lack in self-control — may belong to the moron class, at the same time, we are forced to recognize that many of these badly controlled persons are not definitely feeble-minded. Davenport and his associates have shown, by painstaking investigation, that many of these turbulent persons belong to the "feebly inhibited" type — a group which directly inherits its tendency, but which, on the whole, is not markedly defective, from a standpoint of general intelligence. The disposition to wander away from home, manifested by some children, the tramping or nomadic instinct which characterizes many individuals — not to mention races — together with many other subnormal tendencies, are found, on careful investigation, to be the result of the hereditary absence of certain factors which enable the normal individual to inhibit, control, and suppress many of these instinctive nomadic or violent temperamental tendencies. And there can be little doubt that the American population is becoming saturated with an increasing number of these mildly abnormal individuals, who, taken as a class, belong to this group of the so-called "feebly inhibited," and we have every reason to believe that, in common with the other and serious forms of defectiveness and degeneracy, these milder and less violently anti-social groups are increasingly appearing in our population at the present time.

SUMMARY OF THE CHAPTER

1. To society, the morons represent the more dangerous element of all classes of defectives and degenerates.

2. In the case of girls having illegitimate children, 60 per cent are mentally defective — morons. This may explain why so many of these adopted children go wrong.

3. Psychopathy largely determines crime — intelligence merely affects the nature and extent of it.

4. Moronism is hereditary and therefore constitutional. It is not going to be influenced by preaching, asylums, or reformatories.

5. It should be remembered that the moron possesses a mentality ranging from 8 years up to 12. Those from 12 years up (but not normal) are sometimes called "high-grade" morons.

6. Of 25,000 feeble-minded in Illinois, only 2,000 are under restraint. There are probably 400,000 morons in the United States; one moron for every 217 population in England.

7. Three per cent of those examined for the army belong to the morons or similarly defective type; and two-thirds of these cases are hereditary.

8. It actually costs the city of Chicago \$1,200 to send a moron to the House of Correction. How long will it take us to find a better way to handle these defectives?

9. The moron must not be confused with the "backward" child, nor with those who are just "dull" from temperamental or physical causes.

10. Some cases are difficult to classify and are put into a group called "constitutionally inferior." They are chiefly emotional and nervous.

11. Dementia praecox is really a form of insanity, making its appearance around adolescence. It predominates among males.

12. Praecox patients are usually shy, unsocial, shirk responsibility, masturbate, and often resort to violence if coerced.

13. The ideal method of caring for morons would be a properly conducted farm-colony, where these social misfits could be 60 per cent efficient and self-supporting.

14. A moron can never safely live in a civilized community. Money and lives could both be saved if these defectives were sanely and scientifically handled.

15. In addition to morons, we have a vast group of "feebly inhibited" individuals, embracing the nomadic type and the little-controlled temperamental group.

16. The American population is becoming increasingly saturated with these various sorts of defectives and degenerates.

CHAPTER XVIII

EPILEPSY AND SEX PERVERSION

WE ENCOUNTER numerous cases difficult of classification in our study of mental defectiveness and its relations to society. Epilepsy is a fairly definite disease, but the various groups of sex perverts are much more difficult of either understanding or classification.

THE EPILEPTIC PROBLEM

It has been calculated that the number of epileptics in the state of New Jersey, where the most careful investigation of the problem has been made, will double every thirty years under present conditions.

* "In dealing with both insanity and epilepsy, the eugenist faces the difficulty that occasionally people of the very kind whose production he most wishes to see encouraged — real geniuses — may carry the taint."

It is doubtful if we can always regard epileptics as we do the feeble-minded and advocate the application of general and universal restrictive measures to reproduction. The exaggerated claims of the Italian anthropologist, C. Lombroso, and his school, in regard to the close relation between genius and insanity, have been largely disproved; yet there remains little doubt that the two sometimes do go together; and such supposed epileptics as Mohammed, Julius Caesar, and Napoleon will at once be called to mind. To apply sweeping restrictive measures would prevent the production of a certain amount of talent of a very high order.

A field survey in two typical counties of Indiana showed

that there were 1.8 recognizable epileptics per 1,000 population.

If these figures should approximately hold good for the entire United States, the number of epileptics can hardly be put at less than 150,000. Some of them are not antisocial, but many of them are.

Feeble-mindedness and insanity were also included in the census mentioned, and the total number of the three kinds of defectives was found to be 19 per 1,000 in one county and 11.4 per 1,000 in the other. This would suggest a total for the entire United States of something like 1,000,000.

As a result of the recent study of an entire epileptic colony, it appeared that about 85 per cent of the inmates were feeble-minded from the standpoint of intelligence, and that the great majority (61.5 per cent) were classified as high-grade morons.

In view of the above facts, namely, the obscure nature of the affection, its incurability, and its permanent psychopathic, psychasthenic, and sociopathic sequelae, we can hardly agree with Binet and Simon that the problem of epilepsy — at least in the present unsatisfactory state of its therapy — “is essentially medical.” Tanzi, according to our views, has stated the situation more fairly: “Epileptics require not only medical treatment but also, and perhaps even more, care and supervision.” (See Fig. 15.) While, therefore, I do not wish to minimize the value of the medical care and supervision of the epileptic by the skilled epileptologist, in fact, I deem such supervision absolutely essential so long as the epileptic continues to suffer from severe or frequent repeated convulsions, it is clear that “society will not do its duty by the individual epileptic until it provides him with the type of educational and social training and care which will tend to make him maximally self-supporting, and until it supplies the form of benevolent restraint and occupational pro-

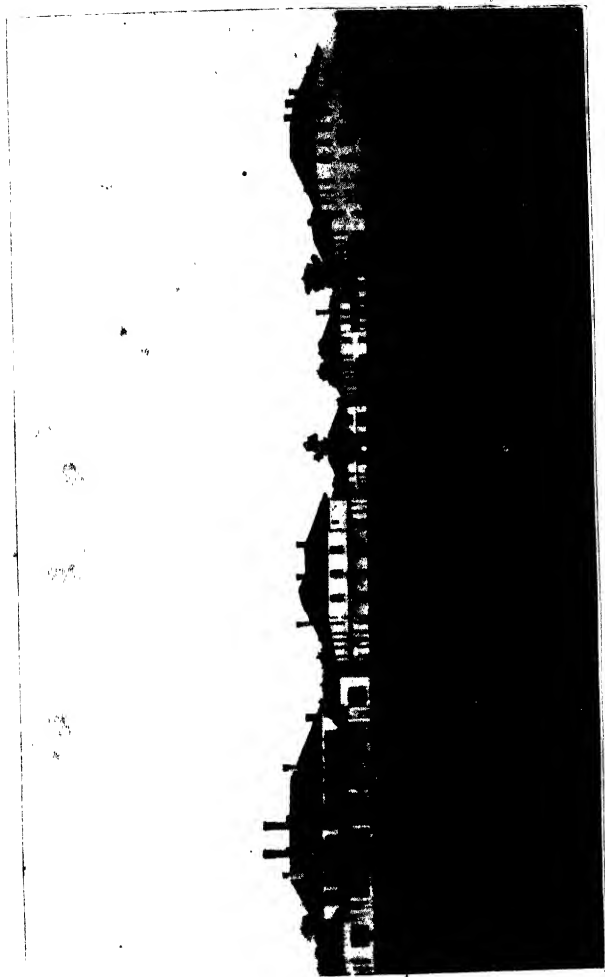


Fig. 15. An epileptic colony

visions which are necessary both in the interest of the well-being of the persons afflicted and the welfare of society."

EPILEPSY AND HEREDITY

Epilepsy is a term believed by many physicians to cover a number of distinct brain disorders that have in common the symptom known as convulsions, or "fits."

The heredity basis of epilepsy has been carefully studied and, almost without exception, it follows the same general laws as feeble-mindedness. Two epileptic parents probably produce only defective offspring, the defect sometimes taking the form of epilepsy, sometimes that of feeble-mindedness. It does not seem necessary to repeat the laws of heredity for epilepsy, since in them the words of epilepsy and feeble-mindedness are almost interchangeable. The epilepsies which are not inherited are probably not true epilepsy — but rather pseudo-epilepsy or some other form of convulsive seizures which are so often erroneously called epilepsy. The hereditary nature of most types of genuine epilepsy is now generally recognized.

A STUDY OF EPILEPSY IN NEW YORK

The New York State Board of Charities recently published a bulletin regarding the Craig colony. In this colony there are 1,500 epileptics. They investigated nine families in which there was an unusual amount of epilepsy. In these nine families there were 200 individuals into whose history and habits inquiry was made. Of these 63 were found to be feeble-minded. Some of the conclusions to be found in the study are as follows:

Inheritance plays an important part in epilepsy. Gowers estimated that to it was due 40 per cent of the total influences causing the disease. Kraepelin made an estimate of 75 per cent. The difference was due to the fact that Kraepelin took

into account more mental and nervous states than did Gowers.

In this study there was a history of chronic alcoholism in at least one parent or grandparent in one-third of the cases, a history of epilepsy in one parent or grandparent in one-fifth of the cases, and a history of insanity in one-tenth.

Dr. W. A. Evans in summarizing this investigation says:

It was shown that where there were the weak traits of a poor stock in families where there was epilepsy those traits were emphasized. If two neuropathic, neurotic individuals married there was a much more than average possibility that some of the progeny would have epilepsy. The conditions of mental and nervous weakness and instability out of which epilepsy grew and which were liable to grow out of epilepsy were: insanity, alcoholism, the established migraine habit, and various convulsive disorders. If in a family tree there was any undue amount of any of these disorders there was likely to be an unusual amount of epilepsy also.

Of the cases of epilepsy investigated 74 to 85 per cent developed before 20 years of age and of this group one-half developed before 5 years of age. Doctors divide epileptics into three groups. First, the cases which develop early. In this group inheritance is a considerable factor. Second, adolescents; and third, epilepsy first developing late in life. The disease among those of the third group is frequently associated with a history of alcoholism, syphilis, and arteriosclerosis. In one-fourth of the cases of epilepsy investigated there was a history of injury at the time of birth.

The estimate was made that there are 175,000 epileptics in the United States, 6,860 being registered in New York City.

SEX PERVERTS

No discussion of feeble-mindedness, moronism, etc., would be complete without some consideration being given to the question of sexual perversions. There is no way of knowing what percentage of our population is abnormal in this respect, but the frequent crimes that are committed against

young boys, pointing to perversions more or less homosexual in their nature; and the terrible outrages perpetrated every now and then against little girls, showing perverted sex leanings along other lines, all serve to indicate that there is no inconsiderable number of these abnormally sexed individuals to be found in the general population.

These sex perverts cannot always be regarded as belonging to the feeble-minded or moron group. They are sometimes quite thoroughly normal mentally, when subjected to every possible test, and only show their abnormality or degeneracy when it comes to the matter of sex behavior and sex relations.

No doubt many of the sex crimes that shock modern society from time to time are committed by those who are mentally defective, by morons, and even in some cases by high-grade imbeciles or idiots. But on the whole, these sex crimes are committed by a different group of abnormal individuals, by a class of defectives who may be said to belong to and constitute the "third sex," in that they are so thoroughly abnormal that they can scarcely be classed sexually as either typical males or females.

While habitual obscenity of thought and long-continued bad sex practices may sometimes lead up to some form of sex perversion; nevertheless we think, as a general rule, these cases are more largely hereditary. In the case of these homosexual perverts, it would seem that an individual may be born with a man's body but, sexually speaking, with a woman's brain. They, therefore, develop sex affection for those of their own physical sex. Mild sex perversion of this sort can be acquired and is not always hereditary, and in these cases it is more or less curable. Many of our tramps are sex perverts of the homosexual order.

It is the author's opinion that the sex perverts who perpetrate the most of our outrageous crimes of this nature are a

class belonging to the feeble-minded group as a whole, and who have directly inherited their brutal and perverted sex tendencies. It is certain that this unfortunate group, as a class, is much more numerous than we are willing to believe. One thing is certain, men, in particular, who are once convicted of a crime of this kind, should not be turned loose to prey upon innocent childhood. They should be segregated or otherwise so confined in some special colony as to render them incapable of further mischief, for in most cases of this sort, once a sex pervert, always a sex pervert.

ABNORMAL SEXUALISM

We are frequently at a loss to decide what mainly underlies any appearance of abnormal sexualism in a certain individual, or at least to decide in what proportion various possible causes may have been operative. Who can tell whether the person who exhibits antisocial sexual tendencies is the victim of an excessive output from internally secreting glands, or of obsessive mental imagery, or of predisposing anatomical conditions, or of various environmental and physical experiences? Frequently still more difficult is it to decide between innate tendencies as a whole, some of which may be derived from heredity, and others from the effect of environment.

The overwhelming attraction which Negro men occasionally have for white girls and women, directly leading in our social life to delinquency, is to be explained by the hyper-sexualism of the female attracted. One has seen instances in which the arguments of social ostracism, race antipathy, and religious faith have availed nothing against this extraordinary impulse.

Dr. William Healy remarks that:

Undoubtedly hyper-sexualism is a vastly greater cause in early life of other than sex offenses than it is later. The morally dis-

turbing influence would naturally be much more during the years when there is less than normal adult self-control. Mere repression, such as is undertaken in all sorts of penal institutions, frequently turns the individual from seeking one kind of gratification to another that may be more disastrous mentally. Punishment does not destroy in these sexualistic individuals such deep-set mental and physical inclinations.

The theft of articles for fetishism, that is for their sexually symbolic purposes, is well known.

The remarkable self-abnegating impulse which leads women to become the abject slaves of men, even to the extent of turning over earnings gained from sex immorality, is of a sexualistic origin. The power of the "cadet" over women cannot be understood unless this psychological phase of their relationship is taken into account. Some women find satisfaction in actually suffering at the hands of their masters. This subjection directly gives opportunity for development of sexual vice.

"The impulse to peculiarly violate little girls, often without rape, is one which unfortunately is not infrequently met with in court work. At the risk of discovery and imprisonment the offense may be repeated over and over, and in this shows the force of an obsessional impulse."

MASTURBATION

We decry exaggeration on this subject because in some ways the habit, like other single factors, is not nearly so important as has been represented. Then, too, our experience in dealing with a large number of nervous patients, shows us the truth of what has frequently been observed, namely, that worry about masturbation frequently does more harm than the habit itself. On the other hand, Healy in his study of young offenders who were well started in careers of delinquency, was profoundly impressed with the breakdown of will, of physical condition, and of general moral fiber that is

correlated with the excessive practice of masturbation. He regarded it as of the utmost importance as a causative factor in girls as well as in boys. The extent to which it stands out clearly may be seen by his statistics. In over 10 per cent the habit was practiced to such a degree that it was to be fairly considered a definite cause. In many other instances the practice may have been a habit, but they did not learn that it was anything of a factor in producing delinquency. Healy further says:

The connection between masturbation and antisocial offenses seems to be established along the following lines—the effect varying greatly, of course, with environmental circumstances and innate tendencies of the individual. The act in itself is antisocial. The individual feels this, and realizes the stigma which indulgence places upon him. His constant efforts at secrecy in this regard may lead to moral breakdown. The sequence is not difficult to understand. First there is weak self-indulgence, then secretiveness and lies, then avoidance of duties and search for stimulation and artificial energy. The effect of masturbation in directly promoting several forms of antisocial behavior among young people is one of the most marked phenomena to be observed in court work.

It should be noted that at least 13 per cent of delinquents in Chicago courts had encountered some early sex experience sufficiently serious to be regarded by the psychologic experts as a causative factor of delinquency. In these cases the trouble arose from the teachings of other children and adults of both sexes, as much as from actual bad sex practices with others. In children the unfortunate introduction into sex life came often from persons of the same sex.

SUMMARY OF THE CHAPTER

1. It has been calculated (in New Jersey) that the number of epileptics will double every thirty years under present methods and conditions.

2. Epilepsy is usually associated with mental defectiveness; but not always. It is sometimes connected with genius—as shown in Mohammed, Caesar, and Napoleon.

3. A survey of Indiana showed almost 2 epileptics per 1,000 of population. This would mean about 150,000 for the whole country.

4. A study of one colony showed 85 per cent feeble-minded; 61.5 per cent being classified as high-grade morons.

5. Epileptics require colonization, supervision, and proper medical treatment, together with suitable education and training.

6. Epilepsy is more of a symptom complex than a disease. But whatever its protean character, it is largely hereditary.

7. A study of the Craig colony shows in the ancestors: feeble-mindedness, epilepsy, alcoholism, neuroticism, and migraine.

8. Three-fourths of epilepsy develops before 20 years; and one-half of this before 5 years of age.

9. There are 6,860 known cases in New York City. This would mean 175,000 in the country.

10. Sex perverts do not always belong to the feeble-minded group. Many are normal as regards all nonsex matters.

11. Some sex perverts are homosexual from birth; they belong to the so-called "third sex"—they are physically of one sex, while mentally belonging to the opposite sex.

12. While bad and unnatural sex practices may lead to sex perversion, nevertheless, most of these cases (homosexual ones) are predisposed to their vice by inheritance.

13. Out-and-out sex perverts when once convicted of crime against children, should not be turned loose further to prey upon the innocent.

14. Hyper-sexualism is responsible for many criminal assaults, delinquency, and vice. This is the explanation of the nefarious "cadet" system.

15. Masturbation, while associated with some phases of delinquency is probably more often an effect than a cause. Its influence has undoubtedly been greatly overestimated.

16. Thirteen per cent of the delinquents in Chicago courts have encountered some early and unfortunate sex experience, sufficiently serious to be considered a factor in their delinquency.

CHAPTER XIX

THE BACKWARD CHILD

IN THE discussion of feeble-mindedness from time to time allusion has been made to the backward child — those cases which are not distinctly defective, but which are not strictly up to average par. Let us now give more definite attention to this large and growing class of youngsters in our public schools.

THE BACKWARD CHILD AT SCHOOL

Two per cent of the pupils in the schools of Chicago are mentally defective, according to Dr. W. J. Hickson of the Municipal Court Psychopathic Laboratory. The teacher is often handicapped at the start in her efforts to develop good character in the pupils because of their defective mentality.

In most large cities at the present time special provision is being made for examining and instructing the backward child. (See Fig. 16.) Special classes are provided and, in many instances, manual training is arranged for those youths who cannot get along with their intellectual studies but who show promise of responding to efforts along the line of some vocational training which would prepare them to become self-sustaining.

Dr. Gould thinks there is a direct relation between eye troubles, eyestrain, etc., and some phases of backwardness in school children. Gould asserts that:

Of late, it has been clearly seen that civilization multiplies enormously the causes of eyestrain, and that as a result nervous and mental diseases are rapidly increasing with a frightful growth in the

general morbidity rates. Suicide of children and also of adults in all countries is in exact proportion to the number of hours of study per week demanded of school children.

According to a bulletin of the United States Bureau of Education, 25 per cent, or about 5,000,000 of the school children of our country have defective vision, and about 75 per cent, or about 15,000,000, of the school children in this country need attention today for physical defects which are prejudicial to health and which are partially or completely remediable.

The work of Dr. Richards in New York City goes far towards confirming Dr. Gould's contention. The former took thirty-eight backward children, finding thirty-five of them needing glasses badly. After about six months' use of properly fitted glasses the teachers of these children rendered reports of progress which may be summarized as follows:

Among twenty-five deficient children from regular classes, nineteen were promoted.

Among nine children from the ungraded classes one was promoted to a regular class.

An examination of the charts will show marked improvement in reading, arithmetic, spelling, and penmanship. The very marked improvement in temper, irritability, and power of concentration is a significant revelation.

In the regular classes the number of those receiving specially pronounced benefit in the grammar grades is eight; of those in the primary grades, four.

The extraordinary results, markedly pronounced in so many cases, justify the hope that many similar experiments will be made. The benefit derived by these children has been so great and of such a nature as not to be definitely measurable.

Dr. Richards estimates that there are about 78,000 children with defective vision in the public schools of New York

and that there is no valid excuse for the failure to prevent this evil in 80 per cent of all such patients. They are not prevented now, he thinks, because the principles and practice of refraction are not adequately and correctly taught in medical colleges. He believes that in New York there is a divided responsibility in the government of the schools; that a cycloplegic is not used to diagnose the errors of refraction in the 84 per cent of far-sighted defectives, and that small errors are ignored although they have great influence in determining effort, proficiency, and conduct. The result is that the accurate measure of the refractive errors of the school children of the city is impossible, and, moreover, if it were done it would be impossible to get the requisite spectacles made, adjusted, and paid for. Lastly, diagnosis and treatment of defects and diseases of other organs than the eyes is not, by any means, at present feasible.

PHYSICAL DEFECTS IN SCHOOL CHILDREN

Health department officials are becoming alarmed over disclosures made through a survey of eye, ear, nose, and throat defects in the school children of Chicago. A surprisingly large number of children have infected tonsils, adenoids, etc.

The conditions discovered are amazing and the parents are in a measure to blame, for they do not grasp the importance and danger of defects of this kind. In many cases the child's life or health is at stake.

For the purposes of a recent Chicago school survey different schools were classed according to neighborhoods. The defects were classified in three groups: "deviations from normal without symptoms," "deviations from normal with symptoms," and "exaggerated cases." A total of 86,000 boys and girls were examined among Chicago's 450,000 school children. The following is a summary of the statistics:



Fig 16 Apparatus used in testing abnormal children

Defect	No. of Children
Defective vision only.....	11,973
Diseases of the eyes, not including defective vision	2,191
Defective hearing only.....	1,263
Ear discharges	663
Enlarged tonsils	29,642
Defective nasal breathing.....	6,214
Adenoids	14,262
Tonsils and adenoids combined.	14,944

The health department physicians found an unusually large number of "exaggerated cases." There were 1,663 in this class who had defective vision and 1,559 who had enlarged tonsils. In the less congested sections of the city conditions were found to be noticeably better than in other localities.

The burden of blame for the 16,000,000 physically defective children in the public schools of the country and the lack of teachers to man 35,000 of the schools was placed on the shoulders of the federal government and the taxpayers by Thomas D. Wood at a recent convention of the National Educational Association, who declared that: "Of the 21,000,000 children in the public schools, 16,000,000 are suffering from defects detrimental to their health and education."

Wood deplored the expenditure of vast amounts of money in "safeguarding hogs and cattle, with little set aside for keeping the children in good physical repair." He advocated a system of universal compulsory health and physical care.

In some cases defective mental capacity is found in the same individual with acquired physical conditions which may be reasonably considered as a possible cause for the mental troubles.

Some authorities believe that mental dullness or inefficiency may be produced by excessive indulgence in bad sex habits. The effect sometimes is so marked that the individual in appearance and behavior seems to be genuinely defective. Of

course we are face to face with the old argument that those individuals who give way inordinately to self-weakening habits must in the first place have been mentally defective. Says one experienced observer: "In those instances where one has observed the extremely dragged-out, typical appearance popularly attributed to this trouble, bad sex habits have almost never been discovered to stand alone as a cause."

MENTAL SUBNORMALITY AND BACKWARDNESS

In the study of individuals who are not obviously feeble-minded, one cannot escape the conclusion that there is a clearly distinguishable group of defectives which stands between feeble-mindedness as already defined, and normality. For lack of a better word the members of this group are usually designated as subnormal — sometimes backward.

Healy includes the following classes in the subnormal group:

1. Those who in spite of passing the Binet tests, still may be shown to have such lack of mental ability as may prevent their normal success.
2. Those who are unable to pass the Binet tests, but who are socially able to take care of themselves because of certain other abilities not determinable by these tests.
3. Those who during school age at least, do not develop normally, but still do not show the three or four years of retardation which in that period is the authoritative qualification for being considered feeble-minded.
4. Then there is need for a class in which to put cases when we are temporarily not sure of anything except the fact that they are not up to normal in mental powers as shown by tests. There is often considerable cause for doubt in the case of a backward young person as to whether the ultimate diagnosis will be feeble-mindedness or not. Sensory disabilities or general physical conditions may perhaps be

partly responsible for the poor showing — for the apparent backwardness.

5. Defect in self-control. It has been very difficult to decide whether this characteristic properly belongs under the head of mental defect. After long consideration of this problem and observation of the outcome in a number of cases it seems clear that a certain number of individuals have a special, definite, innate defect in the powers of self-control; even as others seem to show defective judgment and reasoning powers.

MARRIAGE AND THE BACKWARD CHILD

The laws against the marriage of the feeble-minded are essentially unscientific because they seldom attempt to define feeble-mindedness. If feeble-mindedness were always as clearly distinct from normality as are certain physical deformities, such as clubfoot, then there could be no objection to the law on this score. If we measure the mentality of 10,000 individuals by a quantitative test, such as that of Binet and Simon, then we shall find that the retardation in mental development for one year, two years, three years, etc., shows nowhere a sharp change indicating where the normal ceases and the abnormal begins. Shall we sterilize or forbid marriage to all children whose mental development is retarded as much as one year? That would probably include 38 per cent of all children. Shall the limit be two years of retardation? That would include 18 per cent of the children. Shall the limit be three years? That will still cover over 8 per cent—fully one-twelfth of the population would be sterile.

One investigator asks: "Have we even good ground for denying marriage, generally speaking and under all circumstances, to persons who as school children were even four years behind their fellows? Is it certain that the progeny of such a person will be four years older than their classmates at

school, or three years, or two years, or even one year? Is it desirable to encourage non-legal and irregular unions to sustain a law passed without inquiry and based on no certain knowledge?"

It must be clear to all that a child may be evidently backward without necessarily being feeble-minded. When in doubt regarding such a case, the child should unquestionably be given the benefit of the doubt.

In the case of laws relating either to segregation, or marriage — they should be very liberally interpreted when the suspected individual is regarded as being merely backward — when there exists any serious doubt of feeble-mindedness.

A careful survey of the whole country certainly indicates that backwardness among children is on the increase. Part of this apparent increase is due merely to "discovery" of the situation; but even when every allowance is made for interpretative errors of this sort — it can hardly be doubted that backwardness, in common with feeble-mindedness of the more manifest sort, is slowly increasing among the civilized races, not excepting the American people. Elsewhere, the author has called attention to the possibility of some phases of this backwardness being due to disturbances in the endocrine system — to abnormalities in the hormones of the ductless gland system.

SUMMARY OF THE CHAPTER

1. The backward child is one who, while not discoverably defective, is in some measure so handicapped that it is not strictly up to average par.
2. Hickson thinks that 2 per cent of Chicago school children are backward or mentally deficient.
3. Dr. Gould believes there is a direct relation between eye troubles and backwardness in school children.
4. The United States Bureau of Education says 5,000,000

school children (25 per cent) have defective vision; and that 15,000,000 (75 per cent) are physically defective.

5. Dr. Richards demonstrated that properly fitted glasses contributed to the early improvement of the pupil's work.

6. It is contended that even minor errors of vision may be indirectly responsible for much backwardness and other seemingly abnormal mental attitudes.

7. A recent survey of 86,000 Chicago school children disclosed a formidable list of physical deficiencies ranging from defective vision down to adenoids and diseased tonsils.

8. Wood says that out of 21,000,000 school children in the United States, 16,000,000 are suffering from defects which are detrimental to health.

9. The backward child embraces a large group — a class which cannot be diagnosed as belonging to any class of the feeble-minded but who are, nevertheless, below the normal for some reason indefinable.

10. There are also those whose main defect is lack of self-control; while others seem to be defective only as regards the exercise of reason and judgment.

11. One-third of our school children show a retardation of one year; 18 per cent two years; and 8 per cent three years.

12. Backwardness seems to be on the increase. Part of this is just "discovery," but some of it is actual and is also probably hereditary.

13. In case of laws regulating marriage and designed to control feeble-mindedness, a very liberal interpretation should be made in dealing with simple backwardness.

14. It is possible that some cases of apparent hereditary backwardness may be due to disturbances in the endocrine system — the ductless glands.

CHAPTER XX

FEEBLE-MINDEDNESS IN RELATION TO 'CRIME' .

WHAT is the relation between vice, crime, drunkenness, poverty, and mental defectiveness? Are these social vices and individual crimes the result of feeble-mindedness of some degree on the part of the perpetrators? What is it that heredity is responsible for — feeble-mindedness or crime? Are criminality, immorality, and improvidence inherited as such; or are these various manifestations merely the result of the inheritance of a defective mind — feeble-mindedness?

In at least a majority of these cases of “unsocial” and “antisocial” conduct, we believe the fundamental or basic weakness to consist of the inheritance of a defective mind; and that the vice, crime, drunkenness, shiftlessness, and other social misbehavior is directly or indirectly the result of this inherent feeble-mindedness. We believe the facts and statistics presented in this chapter go a long way toward establishing this contention, when considered in connection with the unbiased study of the whole problem.

It is not our intention to maintain that all crime grows out of mental defectiveness — only that a large proportion of it does; and we freely recognize numerous other influences tending toward criminality.

Not only do we sometimes ascribe crime to a wrong cause, but we not infrequently assign feeble-mindedness and other defectiveness to wrong causes. Subnormality is ascribed to malnutrition of the fetus, to asphyxiation of the child

during labor at birth, to adenoids, to infection with venereal disease, head injuries, and many other direct and individual causes too numerous to mention, despite the fact that (excepting Mongolian idiocy) it usually appears only in families with the defect on both sides of the house.

INFLUENCES LEADING TO CRIME

The love of adventure is a common cause of minor crimes among young offenders; and in some cases even among adults. The typical cases, however, of those who show this mental peculiarity in full measure, are the adolescents. By "love of adventure" is meant the desire for self-expression and for self-activity under unusually stimulating conditions.

One of the commonest of human traits is obstinacy. "The obstinate person is supposed to represent the very antithesis of social suggestibility, and yet in some the tendency to opposition and perversity is as clearly set along definite lines by way of reaction as when the positive forms of suggestibility are shown. It is the old story of the individual who is so against everything, that he is ready to do the opposite of whatever he is told." Such perverse individuals are thus disposed to commit social offenses. One must agree with McDougall in his highly original essay on the subject, that in certain individuals this "negative reaction to suggestion appears as a permanent and temperamental attitude."

A stubbornly persistent form of self-assertion is the desire for revenge. Within limits it is one of the most naturally expressed emotional reactions, but it may follow upon anger as an obsessional phenomenon, and be as much a sign of the lack of self-control as anger itself is. Says Healy: "The desire for revenge plays a considerable part in the production of criminalistic deeds of violence."

Restlessness can be a great factor making for delinquency.

It is sometimes observed in cases where there is decidedly good physical strength and good mental powers. In most cases it is found that this sort of uneasiness rests on some sort of physical basis, perhaps inherited.

The greatest interest for all students of criminology centers about the fact that most frequently the career of the confirmed criminal begins during adolescence. Healy says:

As we look over our adolescent cases, those in which the newly developed mental characteristics of the period play a considerable part, we find always the admixture of causes which is elsewhere seen. But we can fairly enumerate the main features of mental life which make for delinquency at this epoch: (a) general changeableness or instability of ideas and emotions, and consequently of character; (b) excessive impulsions, belonging both to the physical and mental spheres; (c) excessive lack of self-control; (d) mental and physical lethargy or laziness; (e) the general feeling, perhaps only occasional, of recklessness; (f) hyper-sensitiveness, as shown in romanticism, dissatisfactions, hypochondria, etc.; (g) lack of foresight, which is perhaps nothing more than a feature of childish mentality carried over to the time when signs of adult development are showing themselves; (h) egocentrism; ambitiousness; these with impulsiveness and lack of experience may lead to unfortunate behavior. Running away to go on the stage is an example.

Every feeble-minded person is a potential criminal. They have no check to their desires. Whatever they desire to do, they do. Given proper circumstances they become criminals. They are ungrateful, ungenerous, unsympathetic, and have no consideration. They learn only vaguely. The higher types make friends readily, but they never keep them. A moron has no sense of moral responsibility. He is more dangerous than an adolescent neuropath or a hysteric.

ENVIRONMENTAL FACTORS IN CRIME

It is not always easy to decide between opposing arguments on causation of crime, for instance those of the heredity specialists versus the environmental enthusiasts.

One student of crime and criminals offers the following suggestions regarding influences predisposing to crime:

1. *Parent alcoholic*.—The influence of an alcoholic parent on home conditions that produce delinquency is one of the plainest facts observed in the study of criminalistics.

2. *Immoral home environment*.—Whether or not the parents show active criminalism or immorality, the moral conditions surrounding the home may naturally be a vital point in the production of delinquency.

3. *Irritation at home*.—One hears extensively of the effect of quarreling and nagging and teasing as causes of delinquency, both from offenders and their relatives.

4. *Severity and harshness of parent*.—The effect of severity on the part of a parent may have a direct reaction in delinquency. As we have to reckon with such behavior, it runs all the way from mere repression to putting the child out-of-doors, or actual fighting.

5. *Home uncongeniality*.—One of the most peculiar phases of family life that has come to our notice as a cause of delinquency is the uncongeniality that arises through a young individual desiring to better himself.

6. *Parents separated*.—A very fruitful source of delinquency is found in the separation of parents, either with or without divorce.

7. *Crowded housing conditions*.—The material foundations of social life deeply influence morality. In the matter of the many decencies that depend upon housing conditions this stands out very clearly. A considerable cause of sexual vice is to be found in the spacial circumstances of home life.

8. *Poverty*.—It is not necessary to expatiate on the general relation of poverty to criminalism.

9. *No home*.—An adolescent without a home is under the most favorable circumstances for the establishment of criminalistic behavior.

10. *Parental neglect.*— The subject of the effect of parental neglect as productive of delinquency is altogether too trite to be dwelt on in detail.

11. *Bad companions.*— As observed in any phase of court life, bad companions play an immense part in the production of criminalism — though some seem to prefer solitary crime.

12. *Theaters.*— Possible effects of theatrical presentations in producing criminalism is obvious. High-priced plays are, as a rule, not seen by adolescents, and it is doubtful if theaters ever influence toward criminalistic conduct except at this impressionable age. Melodramas urge to action much as moving pictures do, and there cannot be the slightest doubt that the stimulation of certain shows is towards misconduct in sex affairs.

13. *Social allurements.*— The various allurements of social life which stand out in the causation of delinquency form a great variety which are too long to recount. We find, for instance, a defective boy, who is a great runaway, always going to the shops down town. The allurements of fine clothes as worn by others, or as seen in shop windows, is, to those who have a native desire for finery, an undoubted temptation which may result in some form of dishonest acquirement.

14. *School irritation.*— As part of the psychical environment we must very properly reckon with this factor, although in the study of the individual the prime cause would undoubtedly be the personal peculiarity which leads to the irritation.

15. *Unsatisfactory vocation.*— On some occasions we have found hypersensitive adolescents to whom the vocations they were following were highly irritative, and who showed delinquent tendencies as a result.

16. *Influence of newspapers.*— Consideration of the question of the influences of newspapers in producing antisocial conduct has brought forth surprising results. It would seem,

a priori, that the great amount of material which the newspapers publish relating to delinquency must certainly very definitely harm the readers: the only reason they do no more harm is the fact that most criminal careers are begun before the newspaper reading age.

17. *Jails and prisons*.—Lombroso says: "One of the greatest factors in crime is the prison." Tarde says: "The criminal is partly the result of his own crime and partly of criminal justice." And Holmes says: "Why is it that a man's facial expression changes during a long detention? Why is it that his voice becomes hard and unnatural? Why is it that his eyes become shifty, cunning, and wild? It is not because of hard work; it is the system that does it, the long-continued soul-and-mind-destroying monotony."

RACE AND CRIME

The racial composition of the population doubtless has considerable influence on the amount of lawbreaking. Figures show that there are proportionately more commitments among the Negro population than among the white, and more among the foreign-born white population than among the native white. Moreover, there appears to be considerable difference in this respect between the different classes of immigrants as distinguished by country of birth. Sex and age are other factors of some importance in this connection. The great majority of the offenders committed to prisons and jails are adult males; only about 2 per cent of the total number of prisoners and juvenile delinquents committed are under 15 years of age and only about 10 per cent are females. It follows, therefore, that a community or class in which there is a relatively large percentage of adult males is likely to have a higher ratio of prison commitments than one in which there is a relatively large proportion of females and children. In fact it will be found from statistics that

the difference just noted between the native white and foreign-born white, as regards the ratio of commitments, is largely accounted for by the difference in the age composition of the two classes.

That illiteracy is a factor which may have some connection with the frequency of prison commitments is indicated by statistics. These statistics show, at any rate, that the percentage of illiteracy is higher among prisoners than in the general population in the same community; but, on the other hand, it is a question whether in some communities where there is a high degree of illiteracy there may not be, as compared with other communities, a more lax enforcement of the laws and fewer legal restrictions or prohibitions, particularly as regards such offenses as drunkenness, disorderly conduct, vagrancy, and prostitution. In short, there may be in such communities less law and likewise more lawlessness than in other communities where the population is less illiterate.

WHO IS FEEBLE-MINDED?

It is desirable that the suspected subnormal individual should be correctly diagnosed, so that, for example, backward children may not be forced to spend all their school days with feeble-minded children in special schools, and so that backward prostitutes and backward juvenile and adult delinquents shall not be diagnosed as feeble-minded, in order to incarcerate them in some custodial institution for life, or to exculpate them from accountability for the commission of some crime. Binet says heedlessness and lack of attention may cause falling into the trap. This, as we see it, is exactly how in social life certain individuals from empty-headedness or lapses of will receive criminalistic suggestions. The individual, through certain negative aspects of his mental life, is more passive and suggestible than he might be otherwise.

The Binet-Simon rule of determining feeble-mindedness is to subtract the individual's age as shown by the tests from his actual age, and to class the individual as feeble-minded if he shows an "intellectual retardation of two years at an age below nine, or three years at and above nine."

The greatest difficulty with this whole thing is the fact that so many of these tests are, or have been, made by amateurs — by persons not properly trained or experienced for such work. Expert re-examination does not always confirm their diagnosis; and so it is demonstrated that the average amateur can only accurately diagnose the most obvious cases of feeble-mindedness, let alone be able to make a differential diagnosis as between the various types and degrees of mental subnormality and defectiveness. The making of this sort of a diagnosis should be regarded as a serious responsibility.

Evidently the tacit assumption has been that the basis of classification which has been used is universally accepted and therefore need not even be stated, much less explained or justified, although the literature clearly shows that the whole matter of the criteria or standards of feeble-mindedness is still in controversy. Many examiners do not give even a hint as to the adequacy of their examinations — the thoroughness of the Binet testing, or the extent of the psychological, medical, developmental, and social examination. Many of the writers do not tell us whether the 1908 or 1911 scale was used, whether the 1913 suggestions were followed, whether the tests above age 12 were given, and whether the Binet rating included the latter tests.

The author confidently believes that feeble-mindedness is on the increase — that it constitutes a national menace — but he also feels that in some quarters there exists a tendency unduly to magnify the evil and otherwise to exaggerate the dangers. What is desired is the truth — facts — and these are serious enough to stir us to action. A sane people do not

require to be scared into hasty and immature action by overmagnification of the dangers which threaten us.

A SURVEY OF CRIME

That the reader may gain an idea of the importance of mental defectiveness as a cause of crime, in relation to all other influences, the following summary of a study of 823 cases (560 males and 263 females) made by the Chicago Psychopathic Laboratory, is here given:

Groups of causative factors	Number of times appeared to be main factor	Number of times appeared to be minor factor	Total number of times appeared as factor
Mental abnormalities and peculiarities	455	135	590
Defective home conditions including alcoholism	162	394	556
Mental conflict	58	15	73
Improper sex experiences and habits	46	146	192
Bad companions	44	235	279
Abnormal physical conditions, including excessive development	40	233	273
Defects of heredity	..	502	502
Defective or unsatisfied interests, including misuse or nonuse of special abilities	16	93	109
Defective early developmental conditions	..	214	214
Mental shock	..	3	3
Deliberate choice	1	..	1
Sold by parent	1	..	1
Use of stimulants or narcotics	..	92	92
Experiences under legal detention	..	15	15
Educational defects extreme	..	20	20
	823	2,097	2,920

The conclusions of these psychologic and expert investigators are:

It was clearly evident that classification by crimes leads only in special instances to knowledge of the criminal; that statistics of seasons, and races, and head measurements, and alcoholism, and so on, mean almost nothing for the fundamental understanding of the individual case; that epileptic and atavistic theories could not be substantiated by case histories; that refinements of psycho-physical measurements sometimes used on criminals need a tremendous amount of overhauling before they can be regarded as valid for

conclusions; that the elders, who spoke so glibly of "the criminal" as a born type, had not the means of investigating whether he was not rather a born defective, and a criminal through accident of environment.

This last consideration alone is enough to make the student look askance at all the older classifications. The statistics that are offered concerning criminals, whether about their heads, their ears, their religious faith, or what not, are presented without knowledge of essential facts, such as whether or not they were mentally defective; and thus lead us nowhere for purposes of practical treatment. We see segregated in institutions the feeble-minded with just these stigmatized skulls and palates and ears. We find well-developed stigmata sometimes in those who are morally normal. So it seems that by virtue of education or social protection, such marked individuals need not become criminals.

CRIMINALS AS A CLASS

Criminality is an old battle-ground where many conflicts have been fought between the champions of the theories of heredity versus environment as the chief cause of crime. Are criminals born or are they made by their surroundings? Laws such as have been passed in several states providing for the sterilization of criminals *as such*, must be deplored by the eugenicist as much as they are by the pseudo-sociologist who "does not believe in heredity;" but this is not saying that there are not many cases in which eugenic action is desirable; for inheritance of a lack of emotional control makes a man in one sense "a born criminal."¹ He is not, in most respects, the creature he was made out to be by Lombroso and his followers; but he exists, nevertheless, and no ameliorative treatment given him will be of such value to society as preventing his reproduction.

In any investigation of criminals, the benefit of doubt should be given to the individual. But when every possible concession is made to the influence of environment, the

¹ See recent studies of C. B. Davenport, particularly *The Feebly Inhibited*, Carnegie Institution, Washington, 1915. •

psychiatric study of the individual, and the investigation of his family history still show that there are criminals who congenitally lack the inhibitions and instincts which make it possible for others to be useful members of society. When a criminal of this natural type is found, the duty of society is unquestionably to protect itself by cutting off that line of descent.

As a result of a recent psychic study of the inmates of Sing Sing it was said that two-thirds of them showed some mental defect. Examination of 100 convicts selected at random in the Massachusetts State Prison showed that 29 per cent were feeble-minded and 11 per cent borderline cases. The highest percentage of mental defectives was found among criminals serving sentence for murder in the second degree, manslaughter, burglary, and robbery.¹ Paul M. Bowers told the 1916 meeting of the American Prison Association of his study of 100 recidivists, each of whom had been convicted not fewer than four times. Of these 12 were insane, 23 feeble-minded, and 10 epileptic, and in each case Dr. Bowers said the mental defect bore a direct causal relation to the crime committed. It is just as sensible to imprison a person for feeble-mindedness or insanity as it is to imprison criminals belonging to these defective strains. The question whether a given person is a case for the penitentiary or the hospital is not primarily a legal question, but one for a physician with the aid of a student of heredity and family histories.

CRIMINAL HEREDITY

Most students of crime, as well as observers of heredity, have reached the conclusion that criminality — as such — is not hereditary; that the thing which is undoubtedly inherited and which is associated with crime, is some form of mental

¹ Rossy, C. S., in *State Board of Insanity Bulletin*, Boston, November, 1915.

defect. In other words, we agree with Aschaffenburg, who said: "This makes it possible to dispense with the hypothesis that criminal tendencies, like artistic talents for instance, are transmitted from parents to children. I expressly say that we can dispense with it, for it cannot be refuted or proved."

Such an experienced investigator as Healy says:

From our experience we would warn at this place, once more, against the danger of drawing easy conclusions about heredity being the main factor back of misdeeds simply because some progenitors or other members of the family were guilty of delinquency. Both mother and child may be prostitutes, and both be victims of environment. Grandparents and parents and children may be liars, or thieves, or misdoers in other ways, and very little cause of their conduct be protoplasmic carrying over of special traits. Some changes or reformations that may be witnessed through alteration of environment, make one very skeptical about deciding the rôle of inheritance in criminalism, unless other proof than that of similar misconduct in successive generations is brought forth. We feel certain that absolutely the only fair way to study inheritance in criminalistic families is to ascertain the various causes of misbehavior in individual cases, and then to reckon up these with known heritable conditions.

Among those traits of character or tendencies of temperament (not to be classed as evidence of mental defectiveness) which seem to predispose certain otherwise unstable individuals to crime, may be mentioned: inheritance of excess of energy; irritability of temper; hyper-sexual tendencies; other abnormal physical traits; alcoholism during pregnancy; and congenital syphilis.

At the first Eugenics Congress in London, one of the speakers expressed a preference for the son of a husky burglar over the son of a tuberculous bishop. This is doubtless quite correct, but why should the bishop be tuberculous? The truth of the matter is, the reverse is more likely to be the case. In dealing with criminals, then, with a view to cutting off their posterity, we must be careful to understand whether we are dealing with a hereditary feeble-mindedness

or an acquired criminality. If there is a genuine hereditary criminal taint, society is right in freeing itself of it. If it is acquired, the criminals, if placed in good environment, are likely to become good citizens.

I no longer believe in the existence of a hereditary criminal class. I do not believe there is a typical criminal class. Criminals are such because of the inheritance of definite or general mental defects, or because they turn to crime as the path of least resistance as regards the circumstances of their environment, temperament, health, vices, etc.

FEEBLE-MINDEDNESS AND CRIME

In the Psychopathic Laboratory of the Boston Municipal Courts, 350 criminals (210 women and 140 men) were carefully examined in regard to their mentality, with the following results:

Mental defectives	31.1 per cent
Constitutional psychopaths	24.2 per cent
Subnormal	20.2 per cent
Dementia praecox	3.5 per cent
Epileptics	3.5 per cent
Unclassified neurotics	10.2 per cent
Normal	7.3 per cent

The Psychopathic Laboratory of the Kansas State Prison gave out the following report on the examination of 224 white and 101 colored convicts:

White Men

Morons	68.8 per cent
Subnormal	16.5 per cent
Normal	14.7 per cent

Colored Men

Morons	90.2 per cent
Subnormal	5.9 per cent
Normal	3.9 per cent

Wherever investigations of a scientific character have been made as touching feeble-mindedness in the criminal population, they unfailingly show anywhere from 65 to 85 per cent of criminals to be mental defectives of some degree.

The author believes that it is the feeble-mindedness that is hereditary — not the criminality. Criminals, as such, are not born; potential criminals are — because they inherit these mental defects which predispose them to a life of crime or some other abnormal or unsocial pursuit.

PHYSICAL SIDE OF CRIME

Attention has already been called to the prevalence of eye disorders among the inmates of penal institutions. Dr. Case, at the Elmira Reformatory, found that the number of boys suffering from serious defects of vision was 56 per cent, and this without the use of medicine in the eyes. Dr. Orton, of the New Jersey Reformatory, found in his last series of 125 cases that without the use of medicine only 35 per cent of the boys apparently needed glasses. When he used the medicine, 83 per cent of the boys needed glasses. In a former state of civilization, or even now in the country districts, a boy who was afflicted with defective vision could earn a living. To quote a justice of the Court of Special Sessions of New York City, "a boy in the country can see a cow on the other side of a fence no matter how bad his eyes are," and herding pigs has never been cited as a cause of eyestrain even by the most ardent disciples of that gospel. In the city, however, the case is quite different. Most of the work in city life requires the near use of eyes for long-continued periods. Applicants for positions in some of our large corporations are tested for eyesight, and if it is not good they are rejected. Even if applicants with bad eyes are accepted they are frequently unable to perform their duties satisfactorily, and are soon discharged. As an example of this, the

New York Telephone Company refuses thousands of applicants every year on account of bad vision, though the ordinary person would never think of eyes in connection with a telephone.

In the DeWitt Clinton High School, in New York City, is a class of thirty-seven defectives who have failed in every subject. Nothing else could be done with them, so they were put in charge of the physical culture instructor, who reported to the principal that they were "a lot of crooks, thieves, and gamblers." Now, the most cursory examination of these boys' eyes as compared with those of a normal class in the next room showed that these defective boys averaged less than half as good eyesight. Does it require any special gift of prophecy to foretell that in the course of the next ten or fifteen years almost all of these boys will go the usual route of crime, reformatory, and prison?

The medical profession is awakening to the fact that a large number of diseases are due to conditions in the nose as an underlying cause, and mouth-breathing as its consequence. From this come long-continued colds in the head, attacks of sore throat or tonsillitis, catarrhal deafness (which constitutes 95 per cent of all deafness), and as a result of mouth-breathing either by day or night, a greater deposit of tartar is made around the gum-line of the teeth, and thus the foundation is laid for the retention of food particles, which frequently goes on to the formation of pus around the teeth, with their consequent decay and loss. Many cases of appendicitis could be traced to this source of infection, and many surgeons now refuse to operate for this disease until the teeth have been put in a healthy condition — except in the case of acute appendicitis.

Among the physical conditions or defects so commonly found in criminals should be noted: speech defects; deaf-mutism; enuresis; local irritations; headaches; head in-

juries ; as well as the use of alcohol, drugs, tobacco, and even excessive use of tea and coffee.

THE BOYS' COURT

The findings herewith presented are based upon the laboratory analysis of 4,539 individual cases, which have passed through the Municipal Court of Chicago during a recent three-year period. Among the important facts set forth in the report, as proved by laboratory research and experience, may be listed the following :

That 2 per cent of the population is criminally inclined.

That 2 per cent of the population is defective mentally.

That a large percentage of mental defectives are absolutely incurable criminals.

That the mentally defective criminal propagates defectives who will be criminals.

That present criminal reform methods and punishment are largely futile as protection to society.

That little decrease in crime may be expected until present obsolete school instruction methods are changed; and permanent segregation of the criminally defective is provided for.

Psychologic laboratory research activities have demonstrated not only that a large proportion of the cases in all of our courts indicate that the defendants are mental defectives, but also that the same defendants in hundreds of instances appear in the various branch courts. It has been established that the great majority of the defendants have previously been in the Juvenile Court, and even before that had trouble, as children, in the schools.

Statistics of the Boys' Court are of especial interest as indicating that this group of defendants, popularly supposed to be first offenders, is, for the most part, made up of young but confirmed criminals who offer few possibilities of permanent reform.

The rôle of feeble-mindedness in the causation of crime is

fully demonstrated by the fact that 85 per cent of the youths brought into the Boys' Court of Chicago are feeble-minded, subnormal, or mentally defective in some degree.

JUVENILE DELINQUENTS

The total number of juvenile offenders under 18 years of age reported by the last special census study as committed to penal or reformatory institutions was 25,422. As compared with the total population under 18 years of age, this represents a ratio of 72.9 per 100,000. In view of the fact, however, that children under 10 years of age are not ordinarily considered as capable of committing a violation of the law, a fairer measure of juvenile delinquency would be a comparison between the juvenile offenders 10 to 17 years of age and the total population of the same age. Since 568 of the juvenile offenders reported were under 10 years of age, the number from 10 to 17 years of age committed was 24,854, which represents a ratio of 171.7 per 100,000 of the general population of corresponding age. The corresponding ratio for offenders 18 years of age or over was 820.5 per 100,000 population of the same age. This difference in the ratios for juvenile and adult offenders is of course not surprising, since juveniles lack the opportunity or the temptation to commit many of the crimes for which adults are imprisoned, and it is furthermore the tendency to a considerable degree to send juvenile offenders to a penal or reformatory institution only after all other means of correction have failed.

Expert authorities are now agreed that heredity — feeble-mindedness — is the chief factor in the causation of all delinquencies. While many different causes enter into the production of juvenile delinquency, the more careful investigators are coming to the conclusion that hereditary inferiority is the basic explanation. Social and economic reforms all have their place in our general scheme of "uplift," but eugenics is, after

all, the true solution of the most of our so-called social problems of this sort.

SUMMARY OF THE CHAPTER

1. Criminality, immorality, improvidence, and drunkenness are not inherited as such; they are merely various manifestations of inherent feeble-mindedness.

2. In the majority of cases of "antisocial" conduct, the fundamental weakness is the inheritance of a defective mind.

3. Subnormality is often ascribed to prenatal influence, abnormal birth, adenoids, and injuries; whereas the defect lies in the ancestral germ-plasm.

4. Among the influences leading to crime (other than feeble-mindedness) may be named: love of adventure, obstinacy, revenge, restlessness, particularly at the adolescent period.

5. Every feeble-minded person is a potential criminal. They are ungrateful, unsympathetic, and inconsiderate. They lack a moral sense of responsibility.

6. Of the non-hereditary influences predisposing to crime may be mentioned: alcoholic parents, immoral environment, uncongenial home, poverty, divorced parents, evil associates, crime displayed in press or in movies, idleness, and the bad influence of correctional institutions.

7. Other factors in determining crime are: race, age, sex, and illiteracy.

8. Backwardness, heedlessness, lack of proper training, and poor discipline may lead to associations which foster crime.

9. While mental defectiveness is undoubtedly on the increase; nevertheless, there exists in some quarters a tendency unduly to magnify this national menace — even though it be.

10. In the study of 823 crimes, mental abnormality was the major factor in 455 and the minor factor in 135 cases.

11. The older theories regarding crime as a disease and what not, must give way before the hard facts that it is, in the majority of cases, the outcome of a bad heredity.

12. Criminals are born — they come into the world predisposed to crime by their inherent mental defectiveness. En-

vironment is only a determining factor in their delinquency.

13. Instead of enacting laws to sterilize habitual criminals we should have laws for the sterilization of feeble-minded criminals.

14. Two-thirds of the inmates of Sing Sing prison showed some mental defect. In Massachusetts 40 per cent of convicts were defective.

15. In the case of 100 criminals, each of whom had been convicted at least four times, 12 were insane, 23 feeble-minded, and 10 epileptic.

16. Criminal tendencies are not transmitted from parent to child like artistic talents; the thing which is transmitted is the mental defect of the tainted ancestral germ-plasm.

17. But not all crime comes from hereditary deficiencies; some is the result of errors on the part of society and on the part of parents who failed early to inculcate the respect for law and authority into their offspring.

18. Physical defects are also related to criminal tendencies. Bad vision and other bodily disorders contribute to delinquency.

19. In criminals we so commonly find headaches, bad teeth, nose and throat disorders, enuresis, deaf-mutism, drug habits, etc.

20. A study of crime in the Boys' Court of Chicago shows: that most of the so-called first offenders are really old criminals; that most of them are mentally defective; and that their parents were also mentally deficient.

21. Experts are now agreed that feeble-mindedness is responsible for the vast majority of juvenile delinquencies.

CHAPTER XXI

FEEBLE-MINDEDNESS IN RELATION TO VICE AND POVERTY

IN THE preceding chapters the relationship of feeble-mindedness was discussed in regard to delinquency in general, but more in particular with reference to crime and criminals. In this chapter we will consider mental defectiveness more as it is concerned in vice, inebriety, poverty, etc. Let us first consider that some of our delinquents are merely "backward;" not all our misfits are clearly feeble-minded.

THE BACKWARD INDIVIDUAL

Not all persons who fail to pass certain arbitrary and pre-arranged mental tests are to be classed as feeble-minded — some of those individuals are merely backward or uneducated. Wallin contends that many cases showing feeble-mindedness by the Binet-Simon tests, would on more careful and painstaking examination prove to be merely backward, and cites numerous actual cases in proof, of which the following is a typical example:

Mr. A., 65 years old, faculties well preserved, attended school only about three years in the aggregate, successively a farmer and business man, now partly retired on a competency of \$30,000 (after considerable financial reverses from a fire) for ten years president of the board of education in a town of 700, superintendent or assistant superintendent of a Sunday school for about thirty years, bank director, raised and educated a family of nine children, all normal; one (Ph. D.) engaged in scientific research, one assistant professor

in a state agricultural school, one assistant professor in a medical school, one (now deceased) a former music teacher and organist, graduate of a musical conservatory, one a graduate of the normal department of a college, one a graduate nurse, two engaged in a large retail business, one holds a clerical position, all high-school graduates and all except one, one-time students in colleges and universities, failed on all the new Binet tests except six digits and suggestion lines (almost passed the central thought test).

This man, measured by the automatic and arbitrary standards which are commonly followed, would be classed as hopelessly feeble-minded and should have been committed to an institution for the feeble-minded long ago as a "mental defective." But is there anyone who has the temerity, in spite of the Binet "proof" to maintain, in view of this man's personal, social, and commercial record, and the record of his family, that he has been a social and mental misfit, and an undesirable citizen, and should, therefore, have been restrained from propagation because of the mental deficiency? (His wife is still less intelligent.) It is a safe guess that there are hundreds of thousands like him throughout the country, no more intellectual and no better educated, but equally successful and prudent in the management of their affairs. Had he been a criminal when he was tested, those who implicitly follow these standards would have offered testimony under oath that he was feeble-minded and unable to distinguish between right and wrong, or unable to choose the right and avoid the wrong. This case illustrates how easy such a mistake could be made.

Most "middle-grade" morons should be classed as backward or borderline. It is probable that there are ten-year persons whom we are justified in classing as socially weak — or sociopathic, to borrow Hickson's term — rather than feeble-minded. It should be emphasized that feeble-minded-

ness is only one cause of social weakness, incompetency, and irresponsibility.

This view is also corroborated by Healy, who says: "We must confess to a lack of sympathy with the highly colored statements and immaturely considered statistics that have been in the last few years placed before the public. The realities of the situation are bad enough; there is no need of any propaganda by exaggeration."

In distinguishing between mental defectiveness and backwardness, Wallin insists that the following points must be kept in mind:

1. It is not possible in a large number of cases of both children and adults to make accurate and adequate individual mental diagnosis, or to make a mental classification of a group of individuals merely by rule-of-thumb procedure involving the use of the present scale of Binet-Simon tests and certain arbitrarily proposed absolute standards of retardation.

2. The function of tests in clinical psychology is the same as the function of tests in medicine. They are standardized tools by means of which the trained psychologist or trained physician may work more skilfully. They enable him to observe under controlled, standardized, objective conditions; they render his results comparable with the observations of others, and make it possible for him to interpret his findings in terms of average normals. Even the best tests in psychology, however, should be regarded merely as aids to assist in the examining psychologist to a guarded diagnosis.

3. The standards which have been most frequently used in this country during the last few years yield entirely too high a percentage of feeble-mindedness. There was a time when the estimates of the number of feeble-minded in the general population, in the schools, courts, prisons, and reformatories, was too conservative. But the pendulum has now swung to the opposite extreme. Feeble-mindedness has become the

Nemesis of our times. We are now told that at least 3 per cent of our elementary-school children are feeble-minded, that at least half the delinquents are feeble-minded — the figures given are sometimes nearer 100 per cent than 50 per cent — and that most of our social ills are due to feeble-mindedness. We believe that feeble-mindedness is one cause, a very important cause, but still only one cause, of our social difficulties. We believe that the number of feeble-minded children in the schools varies from less than one-half of 1 per cent to less than 1 per cent, instead of 3 per cent or more, while the number of feeble-minded in courts, reformatories, assignment houses, and penal institutions varies from about 10 per cent to 25 per cent instead of from 50 per cent to 97 per cent.

4. The term "feeble-mindedness" should be more sharply delimited. From the standpoint of intelligence the limiting line should be drawn at the point where the intelligence is so deficient that an older adolescent or adult is just barely not able to make his living — cannot maintain an independent existence at the simplest form of work afforded by the community. The point will vary with the community and the individual, but the variation should not be unduly extended when the individual happens to be a delinquent. There are other reasons for social irresponsibility than feeble-mindedness.

FEEBLE-MINDEDNESS AND PROSTITUTION

The New Hampshire Children's Commission reports that "any child has been considered feeble-minded who is three years or more retarded in intelligence. Such retardation could be determined accurately for all institutional cases by the use of the Binet-Simon measuring scale." The commission also wishes to emphasize strongly the fact that its figures, so far as they go, underestimate rather than overestimate the situation. They have erred, if at all, on the side

of conservatism. "In a study of 424 harlots 80 per cent were found to be distinctly defective, their mental age seldom exceeding 12 years. Of some studies made in juvenile courts, numbering 1,487 cases — 61 per cent were found feeble-minded, their mental age averaging from $7\frac{1}{2}$ to 11 years."

There is no reliable way of determining what per cent of prostitutes of either the public or clandestine sort are mentally defective; for it is a well-known fact that such individuals are sometimes morally defective without showing the least trace of being feeble-minded. Twenty-five years of observation and study of unfortunate women have convinced Dr. Lena K. Sadler that about 60 per cent of prostitutes are mentally deficient; about 25 per cent are normal mentally as regards intelligence, but have decided moral defects, while about 15 per cent of these women are fairly normal women both mentally and morally as regards their intellectual equipment, but who for sundry reasons choose to live an immoral life. Very few of this latter class permanently follow prostitution — it is in many of these cases only a temporary thing.

Again it is the author's belief, that it is the mental defect — feeble-mindedness — that is hereditary and not the tendency (directly) towards prostitution or sexual immorality. The daughter of a prostitute does not inherit her mother's tendency — directly — to prostitution, only her mother's mental defect, and thus finds herself led into an evil life for exactly the same reason that the feeble-minded mother so quickly took the path of least resistance in the social struggles and the moral battle of life.

Thus there is reason to believe that from a third to two-thirds of the prostitutes of American cities are feeble-minded. They should be committed to institutions for the feeble-minded and kept there.

Physical examination of wayward girls and women should

be undertaken by a skilful woman physician. Gynecological anomalies and ailments are frequent conditions of grave causative importance, and should be carefully studied and remedied. In those places where a competent woman physician is not available, the work may be done, as in private practice, with a nurse always present.

Diseases and other defective conditions of the genito-urinary system, and syphilis being present in proportionately such a large number of offenders, and leading by local irritation and by deteriorative conditions almost directly to the production of further misconduct, call for much attention and treatment.

Examination of girls for virginity as a basis for their moral classification is, Healy thinks, to be greatly deprecated.

We have spoken of the boy truant, the beginning of whose downfall seems traceable to eyestrain. But what of the girl truant? Alas, for her, the streets hold even more temptation and even greater degradation.

Investigation of the history of the inmates of the homes for fallen women reveals a vast amount of eyestrain and other abnormal physical conditions.

ILLEGITIMATE BIRTHS

Although the available statistics are meager, an attempt was made by the Census Bureau to approximate roughly the total number of illegitimate births in the United States each year. It was impractical to arrive at such an estimate by the method based on the total number of live births in the United States, since incomplete birth registration makes it impossible to obtain, for the country as a whole, statistics having any degree of accuracy. Hence, the estimate was based on the number of single, widowed, and divorced women of childbearing age. In the United States in 1915 the estimated number of single, widowed, and divorced white women

15 to 44 years of age was 8,769,000.¹ In the sixteen states for which figures of illegitimate births were obtained the rate per 1,000 single, widowed, and divorced white women of childbearing age may be estimated as at least 3.7.² Applying this ratio to the estimated population given above gives 32,400 as an estimated number of illegitimate white births in the United States each year. It must, of course, be remembered that this figure is an estimate based on only part of the country: it is improbable, however, that the true figure is below it. Indeed it may safely be considered as a minimum estimate because of incompleteness of birth registration, and erroneous registration of illegitimate as legitimate births.

Because of the recognized inadequacy of birth registration in a considerable part of the United States, another estimate was made, based on data from states included in the birth registration area in 1915. By the method described above the rate for white unmarried women of childbearing age in these states may be estimated as 4.³ This rate applied to the

¹ The number of single, widowed, and divorced white women 15 to 44 years of age on July 1, 1915, was estimated by projecting the annual increase in this group between 1900 and 1910, using the arithmetical method. Strictly speaking, the figures for "white women" refer to women of all races other than Negro. The figure 8,769,000 includes approximately 0.2 per cent of Indians, Chinese, and Japanese.

² The rate per 1,000 white and Negro women in the group specified, exclusive of the Negro women in two states, was found to be 4.3.

The rate per 1,000 white women in this group can be found by assuming, in the absence, for most of the states, of illegitimate births classified by color, that the ratio between the white and Negro illegitimate birth-rates was the same as that in the area of good birth registration, Maryland and Philadelphia combined, where illegitimate births are classified by color. (Maryland was not in the birth registration area in 1915 but was admitted in 1916.) Applying this ratio to the respective white and Negro populations in the group specified results in the figure of 3.7 for the white unmarried female population of childbearing age.

³ The rate per 1,000 white and Negro women in the group specified was 4.6; the correction has been made on the same basis as described in note 2.

number of single, widowed, and divorced white women of childbearing age in the United States, gives a total of 35,100 illegitimate white births. It must be borne in mind that states in the birth registration area have a disproportionate urban population among which the illegitimate birth-rate is high. Nevertheless, this figure may be regarded as an understatement because of errors and omissions of registration of illegitimate births even in states included in the birth-registration area.¹

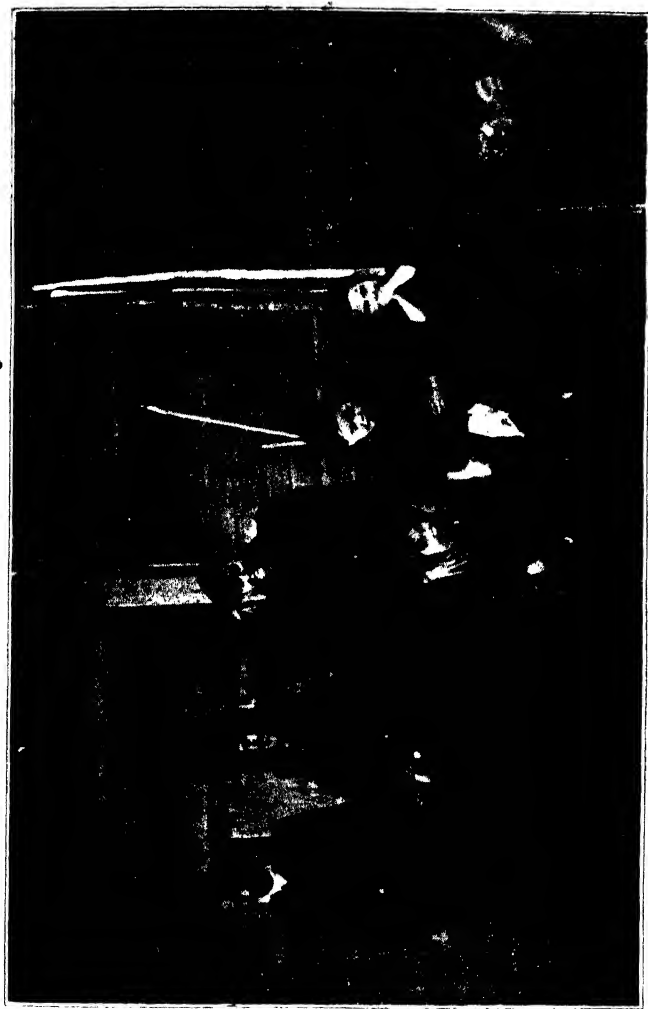
FEEBLE-MINDEDNESS AND POVERTY

There is a direct connection between hereditary feeble-mindedness and such social problems as poverty, drunkenness, drug addiction, and other phases of delinquency and ne'er-do-well-ism. (See Fig. 17.)

Poverty cannot be banished from our present-day civilization as long as feeble-mindedness is slowly increasing among the general population. These mental defectives cannot compete with their more normal and energetic fellows in the struggle for existence. The higher grade of defectives turn criminal or immoral and the lower grades gravitate to the poorfarm or other institutions for the feeble-minded.

Drunkenness and drug addiction result from many and varied influences — both physical and mental — but as a class, the victims of narcotism are neurotic, and constitutionally inferior, if not out-and-out feeble-minded. While

¹ A careful study of records of social agencies in Boston added one-eighth to the number of illegitimate births registered as such in the city. Similar estimates for Negroes would be subject to a much greater percentage of error than are estimates for whites, first, because of inadequate registration in areas where the Negro population is largest, and secondly, because of special conditions affecting Negroes. Such an estimate, if made, should of course be accompanied by a full discussion of the history of the problem and of the difficulties involved in setting up new standards of family morality in place of those existing under slavery conditions.



Courtesy—Dr. A. H. Estabrook

Fig. 17. A typical feeble minded family

this is not true of all, it is true of the vast majority of these habitues of alcohol and dope. Some unfortunates are nervous as a result of the use of alcohol and narcotics; but the greater number fall victims to use of the drug because they are inherently neurotic — because they are mentally inferior and defective — because they come into this world blasted — feeble-minded.

It is certain that many of the pauper class, which fill up our almshouses are similarly deficient. Indeed, the census of 1910 discovered the fact that of 84,198 paupers in institutions on the first of January in that year, 13,238 were feeble-minded, 3,518 insane, 2,202 epileptic, 918 deaf-mute, 3,375 blind, 13,753 crippled, maimed, or deformed. A total of 63.7 per cent of the whole had some serious physical or mental defect. Obviously, most of these would be taken care of under some other heading, in the program of restrictive eugenics. While paupers should be prohibited from reproduction as long as they are in state custody, careful and just discrimination is necessary in the treatment of those whose condition is due more to environment than heredity.

Pauperism is a result of a complex of causes. On one side it is mainly environmental in origin as, for instance, in the case when a sudden accident, like death of the father, leaves a widow and family of children without means of livelihood, or a prolonged disease of the wage-earner exhausts savings.

In the larger pedigrees of the Jukes and Zero families more definite data as to inheritance of some of the elements of poverty can be gained. Let us take "shiftlessness" as an important element in poverty. Then classifying all persons in these two families as very shiftless, somewhat shiftless, and industrious, the following conclusions are reached. When both parents are very shiftless practically all children are

“very shiftless” or “somewhat shiftless.” Out of 62 offspring, 3 are given as “industrious” or about 5 per cent. When both parents are shiftless in some degree about 15 per cent of the known offspring are recorded as industrious. When one parent is more or less shiftless while the other is industrious only about 10 per cent of the children are “very shiftless.” It is probable that both shiftlessness and lack of physical energy are due to the absence of something which can be got back into the offspring only by mating with superior stock. The fundamental cause of pauperism is to be found in hereditary tendencies.

The last census of paupers in the United States — those residing in almshouses — gave the total of this class as 84,198. There are undoubtedly considerably over 100,000 of this class in this country. The distribution of paupers as regards age, nativity, etc., is shown by Table No. 11, Appendix A.

CHILDREN BORN OF PAUPER MOTHERS

It is astounding to contemplate the number of children which are annually born of feeble-minded and pauper parents in this country. In proof of this please note that in 1910 the report of the Census Bureau indicated that the female paupers in the almshouses of the United States are shown to have borne 18,448 children. For details see Appendix A, Table No. 12.

It should be further noted, in this connection, that the census reports show that in one year 1,107 illegitimate babies were born to mothers confined in the various almshouses of this country. For details see Table No. 13, Appendix A.

INEBRIETY

Regarding chronic inebriety and its relation to heredity, Johnson says:

In a consideration of the chronic inebriate, the problem of environmental influences is again met in an acute form, aggravated by the venom of controversy engendered by bigotry and self-interest. That many chronic inebriates owe their condition almost wholly to heredity, and are likely to leave offspring of the same character, is indisputable. As to the possibility of "reforming" such an individual, there may be room for a difference of opinion; as to the possibility of reforming his germ-plasm,* there can be none. Society owes them the best possible care, and part of its care should certainly be to see that they do not reproduce their kind. As to the borderland cases—and in the matter of inebriety, borderland is perhaps bigger than mainland—it is doubtful whether much direct action can be taken in the present state of scientific knowledge and of public sentiment. Education of public opinion to avoid marriage with drunkards will probably be the most effective means of procedure.

There is little doubt but that some individuals stupefy themselves with narcotics and thus appear to a mental disadvantage—they seem to grow more feeble-minded as a result of drink; while still others drink so inordinately merely because they are inherently weak-minded—they lack the power to resist the charm of drink and other narcotics.

DEFECTIVES AND INDUSTRIAL ACCIDENTS

In the 60,000 factories of New York 2,000,000 workers are employed, of whom approximately 1,600,000 are foreign born.

During the year 1915, the first year in which the Workmen's Compensation Law became effective in the state of New York, there were 225,391 reported accidents; in 1916 there were 273,385; in 1917, 313,406; and in 1918, 286,771, costing \$11,500,000 or \$40,000 a day, and representing an average of 274,763 each year—practically as great a number per year in that one state as the entire national army casualties during the World War.

With the productive capacity of a nation reduced, and its dependent and defective classes multiplying in such alarming

proportions the tax upon its resources becomes inequitable. In Pennsylvania, the state receiving the second largest quota of immigration, accident casualties are not only voluminous but of the direst nature. During the past year the New York State Industrial Commission has investigated cases involving actions in which the total amount sued for was approximately \$1,500,000. Settlements were obtained amounting to only about \$25,000, in many cases leaving behind derelicts as helpless as any of the survivors of the war.

Five years ago the coming and going, the hiring and firing, of the alien worker was little regarded; Ellis Island could produce many more where he came from. Five years ago the economic aspect of uncompensated accident casualties was considered of small importance. There is no way of definitely knowing what percentage of our industrial accidents are due to mental defectiveness on the part of the workers; but there is little or no doubt that a very considerable number of such mishaps are due to stupidity and dullness, which is akin to feeble-mindedness or mental backwardness of some degree. Feeble-mindedness goes a long way towards explaining much of the inefficiency of the nation.

GETTING THE CART BEFORE THE HORSE

Is poverty a cause of crime? Are crime and immorality more largely due to inherent tendency or to the influence of bad example and evil surroundings? Wherever there is some relation between the alleged cause and the result, one feels that these explanations are based on the logical error, and that the cart is often put before the horse. The very multiplicity of explanations shows their inadequacy. There is a more fundamental explanation for these non-social traits than any of those that are usually ascribed.

One author sums up the "values" and "relationships" of this problem in the following statement:

First of all we can see clearly that the traits that cause so much trouble are "unfortunate" or "bad" only in relation to our society, i. e., relatively, not absolutely. Lack of speech, inability to care for the person or to respond in the conventional fashion to the calls of nature, failure to learn the art of dressing and undressing, inability to count, entire lack of ambition beyond getting a meal, abject slothfulness, love of sitting by the hour picking at a piece of cloth, these are unfortunate mental traits for a twentieth-century citizen but they constitute a first-rate mental equipment for our remote apelike ancestors, nor do we pity infants who invariably have them. So likewise with crimes: the acts of taking and keeping loose articles, of tearing away obstructions to get at something desired, of picking valuables out of holes and pockets, of assaulting a neighbor who has caused pain or who is in the way, of deserting family and other relatives, of promiscuous sexual relations, these are crimes for a twentieth-century citizen, but they were the normal acts and customs of our remote ancestors, and excepting the last, they are so common with infants that we laugh when they do such things. In a word the traits of the feeble-minded and the criminalistic individual are alike normal traits for infants of today and adults in the earlier stages of man's evolution. There is an aphorism that biologists use which is apt here: "Ontogeny recapitulates phylogeny," which means that the individual in its development passes through the stages like those the race has traversed in its evolution. The infant represents the apelike stage.

THE SOLUTION OF THE PROBLEM

What are we going to do about it? What shall we do with the criminals and delinquent classes? First we must by painstaking effort and scientific methods separate these unfortunates into two classes—those who have gone wrong because of hereditary defects—and those who have stumbled because of backwardness or unfavorable environment.

Regarding the first class—those with defective mentality of hereditary origin—there is but one thing to recommend: that is, to substitute some sort of régime which will effectually prevent reproduction—either segregation or sterilization.

Regarding the second class—the doubtful cases and those unfortunates who are not altogether defective—there are a number of things which may prove of benefit:

1. *Environment*.—Remove every physical handicap; improve the health; give such medical and surgical attention as may be indicated. This must not be taken to mean that the author subscribes to such foolish current teaching as is embodied in the popular statement that "crime is a disease."

2. *Punishment*.—Inflict proper punishment; set in operation effective correction. While punishment may not be of much value to the more defective classes; it is of real assistance if wisely applied to this group of offenders. It certainly is the sincere opinion of many offenders that if punishment were more swiftly and more surely carried out, its deterrent effect would be commensurably greater.

3. *Detention*.—Irresponsible individuals should not be permitted to roam at will about the country to prey upon society as the whim may possess them from time to time. There is no logic in turning loose an epileptic upon the public just because he is in a reformatory and the authorities happen to decide that he was not "responsible for his crime."

4. *Prison reform*.—Let us clean up and reorganize our penal institutions. Why should a sojourn in some reformatory establishment be commonly looked upon as the surest way to make a confirmed criminal out of some young offender?

After learning some of the genetics of criminalistic tendencies, even sanitation and the physical features of the building where offenders are detained appear quite secondary in importance to the moral possibilities of the place. Fortunately the equipment that maintains physical health conserves to a certain extent the moral well-being of the prisoner.

It is no lack of wisdom that leads the shrewd policeman to say to the young offender: "You'd better keep out of jail, because if you're not a crook when you go in, you will be when you come out." What a very strange anomaly it is, that society should take the person from whom it desires

better actions, and place him under conditions which offer every chance for the creation of worse tendencies.

5. *Mental and manual training.*—Schooling for the mind and training for the hand—especially the latter—are the prime requisites for uplifting the more hopeful class of delinquents. Maybe something can be done to atone for some of the defects in our educational and social systems as regards these weaker members of our commonwealth.

6. *Play and religion.*—We must teach these individuals how to have a “good time” without having to become “anti-social” in so doing. They must be introduced to wholesome methods of recreation. Play is the sovereign remedy for the “curable” class of delinquents.

Religion also has its place in individual cases. There can be no doubt that it helps to strengthen the will of some, while it supplies the basis for a “changed state of mind” and attitude on the part of others. Many zealous Christian workers would do more to uplift the fallen if they had a little training in biology on the one hand and some understanding of psychology on the other.

Offenders can never be treated properly unless their problems are understood. No machinery of court or institution, however well organized, can ever take the place of deep humanistic understanding. The girl put it well who blurted out to a certain judge, “You and your officers are here to do your duty, and I suppose you are going to send me away, but before I go I want to tell you one thing; you don’t at all understand me.”

SUMMARY OF THE CHAPTER

1. We are forced to recognize that many a substantial and prosperous citizen might so fail in passing certain set, arbitrary mental tests as to fall under the class of the feeble-minded.

2. Most "middle-grade" morons, like other borderline cases, are easily confused with the "backward" group. This group is also known by the name of "sociopaths."

3. In studying mental subnormality, we should recognize that the rôle of laboratory tests is similar to the technical tests in medicine — they are a help towards diagnosis — not the basis thereof.

4. Wallin thinks the estimates of $\frac{3}{4}$ per cent mental defectiveness in American school children too high. He thinks that our standards and tests are not satisfactory.

5. This author thinks we have less than 1 per cent mental defectives in the schools; and that only 10 to 25 per cent of delinquents are defective — instead of 50 per cent or more.

6. On the other hand the New Hampshire Children's Commission reports that in examining 424 harlots, that 80 per cent were found distinctly defective.

7. Of 1,487 cases of previous delinquency studied in courts, 61 per cent were found feeble-minded, age tests averaging from $7\frac{1}{2}$ to 11 years.

8. Dr. Lena K. Sadler estimates prostitutes as 60 per cent feeble-minded, 25 per cent normal, except for moral defects, and 15 per cent average normal.

9. The daughter of a prostitute does not directly inherit her mother's tendency to immorality, but simply inherits the mother's feeble-minded mentality — which always chooses the path of least resistance.

10. All sexual delinquents should be subjected to a thorough-going physical and medical examination in addition to the standard mental tests.

11. The Census Bureau estimates that we have over 35,000 illegitimate white babies born in the United States each year.

12. There appears to be a direct connection between inherited feeble-mindedness and such social problems as poverty, drunkenness, drug habits, and general ne'er-do-well-ism.

13. In times of stress the higher grades of defectives turn criminal, the middle grades gravitate to the poorfarm, and the lower grades to the feeble-minded asylum.

14. Twenty-five per cent of the paupers of this country are recognized to be out-and-out feeble-minded or insane, while 63.7 per cent have some mental or physical defect.

15. "Shiftlessness" is a hereditary trait of character and has been most carefully worked out in such families as the Jukes and Zeros.

16. There are about 100,000 paupers confined in the almshouses of this country, not to mention those subsisting on charity outside the poorhouse.

17. During a recent year, female paupers in almshouses of the United States gave birth to 18,448 children.

18. During a single year 1,107 illegitimate babies were born to defective mothers confined in the various almshouses of this country.

19. While alcoholism may stupefy the mind, the majority of inebriety grows out of inherent weak-mindedness—these unfortunates lack the power to resist the charm of drink.

20. The increasing prevalence of feeble-mindedness is undoubtedly associated with the increasing number of industrial accidents.

21. The inherently feeble-minded commits acts, which his fellows classify as crimes; but which were entirely normal on the part of his remote ancestors.

22. In dealing with all classes of delinquents, we must recognize two classes—those who are inherently defective, and those who have stumbled because of unfavorable environment.

23. Our treatment of the hereditary delinquent must provide for continuous supervision and attention.

24. Our treatment of the environmental delinquent must provide for: the removal of physical handicaps and proper punishment during detention in an uplifting atmosphere.

25. Both manual and mental training would be helpful to the non-hereditary delinquent, not to mention the good effects of plain religion.

CHAPTER XXII

BORDERLAND DEFECTIVES

IN ORDER to complete the picture of Race Decadence from the mental and nervous standpoints, we will, in this chapter, present a group of so-called "borderland" ailments which are on the whole hereditary, but which are not all so serious from the eugenic viewpoint as the more grave mental defects already considered.

In a general way, these numerous inheritable defects and diseases follow the laws of Mendel just as does feeble-mindedness; although we must recognize now and then that even mental defectiveness presents a case that seems not exactly to follow Mendel's laws. I recently studied a family of eight children, four of whom were markedly defective. The father and mother both seem to be honest and are fairly intelligent and reliable people. They absolutely deny the existence of any mental defect on either side. In neither family has anyone been in a public institution. All brothers and sisters of the father and mother are self-supporting, and their few children are all said to be normal. We can conceive of no reason why these parents would want to mislead us, in view of their otherwise frank and full statement of all the family history. Certainly if one were to go by Mendelian ratios, we would expect a trait which shows itself in four out of eight children to be discoverable somewhere in the ancestral history, and therefore to be more or less well known as a family trait or characteristic.

MATERNAL IMPRESSIONS

Many of the defects noted in this chapter will be connected in the reader's mind with the old subject of "birthmarks," "maternal impressions," and "prenatal influences." The effect of so-called prenatal influences or maternal impressions (some condition or activity of the mother's mind) in influencing in any way the mind or body of the unborn child has yet to be proven. This is in no wise controverting the well-known serious effects of disease, sorrow, or worry shown in maternal nutritional disturbance, or the effects of lack of food, poisoning, etc., during pregnancy.

Science does not credit the belief that fright or other strong emotion can frighten an expectant mother and thereby mark or disfigure the unborn child. Some authorities maintain that the mother can influence the mental and physical development of her child by some derangement in the internal secretions of the ductless gland system of her own body. But this is not the place for the full discussion of this most interesting subject. More attention will be given it at another time; meantime we should rest assured that the defects noted in this chapter are true hereditary defects and that they have no connection with the question of "maternal impressions."

In this class of minor defectives are those who are germinally physical weaklings or deformed, those born with a hereditary diathesis or predisposition toward some serious disease (e. g., Huntington's chorea), and those with some gross defect of the organs of special sense. The germinally blind and deaf will particularly occur to mind in the latter connection. Cases falling in this category demand careful scrutiny by biological and psychological experts, before any action can be taken in the interest of eugenics; in many cases the affected individual himself will be glad to cooperate with society by remaining celibate or by the practice of birth con-

trol, to the end of leaving no offspring to bear what he has borne.

ABNORMAL PHYSICAL CONDITIONS

Among the various abnormal physical conditions which may contribute to delinquency, the study of a group in the psychopathic department of the Chicago Municipal Court gives the following as the leading possible physical factors or causes:

	Major	Minor
General excessive overdevelopment for age.....	4	33
Marked overdevelopment of sex characteristics for age	5	18
Puberty markedly premature.....	9	53
Excessively poor general development.....	7	42
Very poor nutrition.....	3	24
Puberty much delayed.....	..	8
General poor physical condition.....	5	23
Anemia	5	7
Heart disease	1	6
Excessive enlargement of thyroid.....	1	2
Diseases or defects in nose and throat.....	10	41
Excessive carious teeth.....	3	19
Marked defective vision.....	13	72
Marked defective hearing.....	1	13
Phimosis	5	5
Local irritative conditions of genitals.....	1	5
Venereal disease .....	..	1
Pregnancy .....	..	1
Ptoxis .....	..	1
Defective control of bladder.....	..	3
Deaf-mutism	1	1
Stammering in excess.....	2	4
Headaches in excess.....	3	11
General nervous manifestations (neurotic types).....	2	15
Gynecological ailment .....	..	1
Chorea .....	..	3
Epilepsy .....	..	1
Ringworm .....	..	1
Tuberculosis .....	..	2
Recent injury .....	..	1
Migraine .....	..	1
Boyish type of physique in girl.....	..	1

The director of the Psychopathic Laboratory comments as follows:

It is only when physical conditions have appeared themselves directly as causes, irrespective of mental conditions, that we have included them in the above enumeration. For example, epilepsy was a factor in the delinquency of one individual who did not have any accompanying mental symptoms, and thus it counted as a physical cause. Then ringworm caused the rejection of a boy from school and his consequent life with bad street companions. Of course in many more cases than given above, carious teeth were found, but only in twenty-two instances could the condition be counted in any way related to the delinquency. It is the same with defective vision and other conditions. The number of instances in which phimosis was a factor will to some appear very small, but it is as we have found it with very careful observation. Venereal disease is very common among the young women we have seen, but in itself could only be regarded as a causative factor in one case. Pregnancy once was a factor when there was an accompanying minor psychosis. Possession of a boyish type of physique was an incentive in one case to the girl pursuing a life of adventure, suitably attired as a boy.

That the so-called stigmata of degeneracy play but a small part in identifying the criminal type is shown by the fact that in 1,000 cases of criminals examined and reported by Healy, only 133 showed these stigmata in any form.

Anomalies of external ear.....	67
Anomalies of palate and jaws.....	63
Anomalies of shape of head (including facial asymmetry)	55
Anomalies of teeth.....	5
Body asymmetry	5
Anomalies of eye	4
Gynecomastia	2
Anomalies of hands.....	2
Supernumerary mammae	1

It appears that if the cases of mental abnormality are taken out of a criminal series, the proportion of marked stigmata will be little, if any, larger than in the general population.

DEMENTIA PRAECOX

This is a form of inherited insanity or nervous disorder of a very grave character, usually making its appearance in the early years of adolescence, but sometimes not appearing for many years subsequent. At present, it must be regarded in general as an incurable disorder. Heredity has considerable to do with it, though it does appear, like Mongolian idiocy, now and then in families which represent fairly good stock, and its hereditary nature is not so fully understood as that of some other insanities.

It may be possible that dementia praecox, in common with numerous other nervous disorders of doubtful nature and origin, is largely due to disturbances of the internal glandular system of the body. At least it is to be hoped that additional research and new discoveries in this field, may offer us at least some hope of affording relief to these unfortunate sufferers.

Sajous states that this disorder is partly caused by decreased secretion of the thymus gland too early at puberty, that is,

. . . . before the completion of the development of the brain. The thymus being also a participant in the antitoxic processes of the body, with the thyroid and adrenals, its untimely deficiency entails likewise the accumulation of toxics which produce the morbid mental phenomena. Kraepelin, Tyron and Pierce Clark, Benedik and Deak, Laignel-Lavastine, and others have held that the disease was of toxic origin—again, however, without accounting for the process.

Even the pineal gland has imposed itself upon the psychic field, a teratoma of this organ having caused, in a 5 year old child whose case was reported by Frankl-Hochwart, so rapid a mental development that he reasoned as would a young man with a predilection for ethical and philosophical questions. Another boy of 4 years, observed by Ostreich-Slavyk,

also showed extraordinary wisdom. Indeed so remarkable are the evidences of psychic development when this little organ is hypertrophied or the seat of a tumor, that one wonders whether the great Swiss philosopher and physician, Haller, who, before he had reached his tenth year had written a Chaldee grammar, a Greek and Hebrew vocabulary, and a large collection of Latin verses and biographies — was not, after all, the happy possessor of a tumor of the pineal gland!

Dementia praecox is a disease which strikes adolescents of both sexes. These young subjects are committed to asylums in this country alone at the rate of about 20,000 a year. Their accumulation is such in the institutions for the insane of forty-eight states, that when the last census was taken, about 120,000, over one-half of the total inmates, were cases of dementia praecox. All these poor beings are merely stored at present — buried as it were — with death as their only redeemer.

• IS THERE MEDICAL HELP FOR SOME DEFECTIVES?

Are there certain classes of mental defectives which are not such from direct inheritable defects in the germ-plasm? Are some forms of mental deficiency due to lack of internal secretions? If this is really the case — then medical science will, sooner or later, find a remedy for this group — even though it may never offer help to those who are disinherited because of defective germ-plasm.

Dr. M. W. Barr, of Elwyn, states that there are 350,000 *avowed* mental defectives in the United States, and that 328,000 of these are at large “perpetuating unrestrained the defilement of the race.” The Russell Sage Foundation has shown, moreover, basing its estimate on a study of the schools of thirty-one American cities, that over one-fifth of all the children in the public schools of the United States belong

to the retarded class — to say nothing of those who do not attend school. Again, in practically every phase of physical degeneracy, from one cause or another, we are forced to recognize a more or less serious increase. So marked, indeed, in some directions is this increment, that we cannot but agree with Dr. Kehoe when he states that the time is not far off when "to see an individual of natural poise, normal mind, and healthy body, will be the exception and not the rule."

Dr. Sajous thinks that at least some of these subnormal sufferers are going to be helped sometime in the near future, when we better understand the ductless glands of the body and know how to administer these substances as derived from the lower animals. He says:

How could this evil be stemmed? How could we, physicians, while supporting the praiseworthy effort of the eugenist on behalf of the child of the future, *protect the child of today and the unborn but doomed of tomorrow*, for whose welfare we are, more than anyone else in the world, responsible? We know that soon after birth, one year, two years at most, the erstwhile plastic material of which the organ of mind is composed, will have been molded into its permanent shape, that of the feeble-minded; we know also that puberty may so disturb the psychic equipoise as to transform an erstwhile bright child into an asylum inmate. How could we relieve *our* generation of fetters so harmful to its development, so prolific in suffering for innocent victims of the "iniquity of the fathers" visited "upon the children unto the third and fourth generation?" A searching study of the subject has imposed upon me the conclusion that we have the means for the salvation of a large proportion of the infants of our day from feeble-mindedness and of many children doomed to precocious insanity through an adequate conception of the meaning of the ductless glands in the morbid process.

INTERNAL SECRETIONS AND HEREDITY

While it is not generally accepted in the scientific world, it is nevertheless interesting to examine this idea of internal secretions in relation to heredity. Sajous continues:

There is thus a solid foundation for my belief that what in reality a mentally defective child inherits from his parents and an-

cestry is, (1) a tendency to defective physiological nutrition and development of his cerebral neurons; (2) inability to break down adequately various endogenous toxics capable of awakening active psychical disorders; and (3) that both these morbid conditions are traceable back to the degenerative disorders caused in the ductless glands of parents or ancestors by the diseases and intoxications known to lead to the genesis of mentally defective offspring. Briefly, *the main underlying cause of defective mentality in both parent and offspring is inherited deficient activity of the ductless glands.*

Under these conditions, a pregnant defective fails to supply her fetus with the ductless gland secretions it requires. If the father is also a defective, we know that the product of conception, when developed, will prove to be a defective. Why permit this? Why seal the child's fate through inactivity? I believe that with what knowledge we have of the ductless glands even at the present time, we should start a campaign having in view the salvation of these unfortunate infants by supplying, through the intermediary of their defective mothers, and, after birth, through their food, the secretions they lack to complete their development. This could be accomplished by administering organic products to the mother during pregnancy and while she is nursing her infant, or if, as is the rule, the latter is fed artificially, by the addition of the organic products to the cow's or goat's milk used. On what ground could we hope to benefit the child by these measures?

The fact that the ductless glands play an important rôle during pregnancy is so well known that a brief summary of some of the evidence is all that will be submitted. As to the pituitary, it was found to be overactive during pregnancy by Comte, Launois, and Mulon, and others. Swale Vincent states in fact that it may enlarge to two or three times its normal size. The thyroid is so active also that its enlargement is often noticeable—108 times in 133 cases of pregnancy studied by Lang. If deficiency of the thyroid is present, convulsions occur, but these may be arrested by administering thyroid gland. Disorders of the pituitary also give rise to psychosis. As stated by Cushing, referring to his cases, and quite in accord with my own observations, "One form or another of psychic irregularities have manifested themselves in the larger number of patients." Whether we grant that this organ produces a secretion, or accept my own view that it coordinates the functions of the other ductless glands through the sympathetic system, does not modify the fact that it also controls metabolism. Here again we meet psychasthenic states of a melancholic type sometimes attended by delusions of persecution, convulsions, etc., all due to defective destruction of tissue wastes.

The thymus is so important an organ in this connection that it

may be said to stand, in respect to idiocy and dementia praecox, as the thyroid does to myxedema and cretinism. It is the gland upon which, from my viewpoint, the brain cells depend for their developmental supply of phosphorus-laden nucleins; if it fails through organic disease, defective development, or premature involution, to furnish its product, the organ of mind remains undeveloped and idiocy results. So evident is this connection that Bourneville found the thymus absent in twenty-eight idiotic children examined post-mortem, while the organ was found normal in sixty-one children of normal mentality who died of various diseases. Clear evidences of idiocy are also obtained in animals deprived early of the thymus.

“FUNCTIONAL DEFECTIVES”

In other words Sajous believes that many of our mental and nervous defectives are “functional defectives” — not organic defectives; and he further states the case as follows:

The thousands of purely functional defectives which the country contains, as we have seen, are not, judging from personal cases, the children of parents in whom, in most instances, clearly defined stigmata can be discerned. This means that any infant may become a defective unless its development is closely watched by the attending physician. At the present time the evil trend is discovered too late to save the child's mind. Were every infant closely watched from birth, and its development, physical and mental, compared with that of a normal child (standard tables being available in most works on pediatrics), timely treatment could be instituted and a large proportion of them redeemed. In addition to the use of organic products indicated by the stigmata discovered, the special senses should be cultivated, external impressions being all-important factors in psychic development. It should be remembered also that disorders of eyes, ears, nose, and nasopharynx may be the underlying cause of defective mental development in infants.

By the phrase “purely functional defectives” I mean infants in whom the ductless glands, though congenitally debilitated, are not the seat of organic lesions, and in whom also the cerebral tissues, though undeveloped, are susceptible to development through organotherapy. Unfortunately, as is well known, a large proportion of idiots, post-mortem show lesions of the brain, such as sclerosis, atrophy, softening, etc., which no longer are cultivable soils. Yet, distinct improvement is often obtainable, even in such cases. This is because the degenerated areas are seldom bilateral and the corresponding areas on the opposite side of the brain can thus be made,

through improved nutrition and oxidation, to compensate, to a remarkable extent sometimes, for the shortcomings of the functionless areas. Even these lesions are sometimes subject to improvement, Cattani, Klebs, and others having shown that regeneration occurs occasionally when the lesions are comparatively slight and of recent formation.

With this theory the author can entertain much sympathy — at least in regard to many forms of backwardness, deficiency, and even some forms of insanity, including the dreaded *dementia praecox*; but when it comes to out-and-out feeble-mindedness, I do not look for much help from such sources.

OTHER HEREDITARY DISORDERS

While most of the defects and diseases about to be enumerated would not be sufficient ground for preventing their victims from marriage, and, in many cases, if suitably supervised, would not endanger offspring, yet on the whole they represent directly inheritable defects which should render marriage doubtful, and would be in most cases, from a eugenic standpoint, a contra-indication to reproduction. Among the disorders which are definitely inheritable may be mentioned: Friedreich's ataxia, Ménière's disease, speech defects, eye defects, night blindness, color blindness, ear defects, skin diseases, Thomsen's disease, hemophilia, cretinism, and polydactylism.

Chorea (St. Vitus' dance) is an inheritable nervous disorder, partly physical, but more largely temperamental and neurotic. It represents one of the inheritable nervous diseases and is an additional evidence of the increasing nervous instability of some modern races. While it may be quite wholly cured by proper treatment and nervous discipline, and while it could hardly be said to be a disorder of sufficient gravity always to prevent the marriage of those afflicted by it, nevertheless, it does represent a nervous racial instability

which should be distinctly recognized as a thing transmissible to future generations.

Huntington's chorea is another peculiar nervous disease which is almost unerringly transmitted to succeeding generations. If victims of this disorder are allowed to marry at will, this comparatively new disease will soon be more or less spread over the entire country. It is a definitely inheritable disorder, and illustrates, in a most graphic manner, the fact that many of these diseases can be controlled, or their spread prevented, if suitable preventive measures are employed.

Stuttering and stammering and other speech defects, while not serious from the standpoint of racial decadence are, nevertheless, of interest as being indicative of the widespread prevalence of nervous instability among the American people; and it is enlightening in this connection to know that the experts who deal with these disorders estimate that there are between four and five hundred thousand actual stammerers and stutterers in the United States.

This country is also cursed with an increasing number of defective and subnormal persons who belong to the class of so-called "feebly inhibited" individuals. This class embraces that large group of nomadic and irresponsible men and women who were characterized by a tendency toward truancy when younger. In this class of the "feebly inhibited" are also to be found those unfortunates who are victims of violent temper, and who possess such a small degree of self-control as to be a source of constant friction as they mingle with their fellows. In a still further subdivision of this group may be found various types of "peculiar" people, the majority of whom—while not distinctly dysgenic—turn out to be social and economical misfits.

These numerous minor nervous disorders are all just as definitely hereditary as the more grave mental diseases; but, do not so seriously threaten the stability of the race.

SUMMARY OF THE CHAPTER

1. There are numerous "borderland" defectives, not so grave as feeble-mindedness, but which are also more or less hereditary.

2. "Maternal impressions" and "prenatal influences" are not accepted as an explanation for inherited defects and deformities.

3. Science does not credit the belief that you can frighten an expectant mother and thereby mark or disfigure the unborn child.

4. Many of these doubtful defectives, from the eugenic standpoint, are glad to remain celibate and thus give the next generation the benefit of the doubt.

5. Among the physical causes associated with delinquency may be mentioned: malnutrition, disease of the special senses, bad teeth, sex disorders, headache, etc.

6. So-called stigmata of degeneracy were found in only 13 per cent of 1,000 criminals examined by Healy.

7. Dementia praecox, while largely hereditary, does also appear (like Mongolian idiocy) in families which represent fairly good stock.

8. Some authorities think that dementia praecox, in common with other minor mental disorders, is due to disturbances in the internal secretions.

9. Disorders of both the thymus and pineal glands are associated with marked and profound disturbances of the mind and nervous system.

10. Precocious prodigies who astonish the world by their early mental development may simply be the victims of a tumor of the pineal gland.

11. Twenty thousand dementia praecox cases are sent to asylums in this country every year.

12. There are over 120,000 cases of dementia praecox in the asylums of the country — one-half of the total number of inmates.

13. Of 350,000 avowed mental defectives in the United States, 328,000 are at large perpetuating, without restraint, their defective strains.

14. The Russell Sage Foundation finds 20 per cent of

school children retarded in a study embracing thirty-one cities.

15. It would seem that the time is not far off when an individual of natural poise and normal mind will be the exception instead of the rule.

16. Science may some day (through ductless gland therapy) effect the cure of some of the non-hereditary forms of both insanity and other sorts of mental defectiveness.

17. Sajous believes that many of these minor cases of defectiveness owe their origin to an inherited deficiency of ductless gland activity.

18. The pituitary gland and the thyroid gland are both active during pregnancy and some authorities think they influence the fetal development.

19. The child deficient in internal secretions is supposed to be helped by feeding the missing substance to the mother both before and after the birth of the child.

20. This group of disordered minds due to deficient internal gland secretions is termed "functional defectives."

21. These methods may some day assist in curing many forms of backwardness and even the dreaded dementia praecox — but hardly out-and-out feeble-mindedness.

22. Other inherited disorders are: Friedreich's ataxia, Ménière's disease, speech defects, eye defects, night blindness, color blindness, Thomsen's disease, hemophilia, cretinism, etc.

23. St. Vitus' dance (chorea), Huntington's chorea, and stammering are also inherited disorders.

24. There are almost half a million actual stammerers in this country.

CHAPTER XXIII

THE "ARISTOCRACY OF THE UNFIT"

WE ARE supporting an idle population of defectives amounting to more than 1 per cent of the total population, at an expense to the state and nation of more than \$100,000,000 a year. The names of these insane, idiots, criminals, and paupers are registered in state hospitals, asylums, almshouses, and prisons, together with something of their pedigrees. And with this evidence of unfitness clearly before us, we permit many of these defectives to breed more and worse lunatics, idiots, criminals, and paupers.

Rubner in an address before an international congress recently said that, "the human is deteriorating and that a given number of people, five or ten thousand, would be found to weigh less in the aggregate at the present time than the same number of people a generation ago."

Sir Ray Lankaster states:

Civilized mankind appears to be very nearly completely in a condition of "cessation of selection." It is the better-provided and well-fed, well-clothed, protected classes of the community in which the cessation of selection is most complete. Racial degeneration is, therefore, to be looked for in those classes quite as much as in the half-starved, ill-clad struggling poor, if, indeed, it should be expected to be more strongly marked in them. These are facts which tend to show that such anticipations are well founded.

THE DECADENT CLASSES

Perhaps it will be as well to take a bird's-eye view of the whole field of human decadency. Let us always bear in mind that it is the defective individual that is dangerous to society,

and not a so-called class of defectives. We are not justified in cutting off the future line of some member of society just because he happens to belong to some class or group which may for the time being be under social stigmatism.

On the other hand it would not be fair to future generations if we should permit a manifestly defective individual to reproduce just because, in some manner he receives the social sanction of belonging to a supposedly immune group of society. Bearing in mind these facts, we believe that energetic means should be employed to prevent the future reproduction of the grossly defective — such as the feeble-minded, insane, epileptic, and the unmistakably inherent delinquents and degenerates.

INSTITUTIONAL DEFECTIVES

Stop for a moment and consider the vast host of the "aristocracy of the unfit," comfortably housed in the various classes of public institutions in the United States. In round numbers we have the following:

Blind — total, 100,000 approximately. Of these, about 50,000 are totally blind, and 50,000 partly blind. The affection is stated to have been congenital in 4,730 cases. Of the blind 19 per cent were found to have blind relatives; 4.5 per cent were returned as the offspring of cousin marriages.

Deaf — total, about 100,000 including deaf and dumb. More than 50,000 of them were deaf from childhood (under 20), 12,609 being deaf from birth. At least 4.5 per cent of the deaf were stated to be offspring of cousin marriages, and 32.1 per cent to have deaf relatives. "The significance of this cannot be determined unless it is known how many normal persons have deaf relatives (or blind relatives, in considering the preceding paragraph), but it points to the existence of families that are characterized by deafness (or blindness)."

Insane.—The last census enumerated only the insane who were in public institutions; they numbered about 19,000. The recent census of the National Commission on Mental Hygiene showed 234,055 insane patients in all institutions—public and private. The number outside of institutions is considerable but cannot be accurately estimated.

The institutional population is not a permanent, but mainly a transient one, the number of persons discharged from institutions in one year being about 30,000. From this one can get some idea of the amount of neurotic weakness in the population of the United States—much of it congenital and heritable in character.

Feeble-minded.—The latest census lists only those in institutions, who totaled about 40,000. The census experts believe that 200,000 would be a conservative estimate of the total number of feeble-minded in the country, and many psychologists believe that 300,000 would be more nearly accurate. The number of feeble-minded who are receiving institutional care is almost certainly not more than 10 or 15 per cent of the total, and many of these (about 15,000) are in almshouses, not special institutions.

Paupers.—There are almost 100,000 paupers in almshouses, and 88,313 were admitted during one year, which indicates that the almshouse paupers are a rapidly shifting group. "This population, probably of several hundred thousand persons, who drift into and out of almshouses, can hardly be characterized accurately, but in large part it must be considered at least inefficient and probably of mentally low grade."

Criminals.—The inmates of prisons, penitentiaries, reformatories, and similar places of detention numbered more than 100,000, and this does not include 25,000 juvenile delinquents. "The jail population is nearly all transient; one must be very cautious in inferring that conviction for an offense

against the law indicates lack of eugenic value; but it is worth noting that the number of offenders who are feeble-minded is probably not less than one-fourth or one-third. If the number of inebriates could be added, it would greatly increase the total; the inebriacy, or chronic alcoholism, is generally recognized now as indicating in a majority of cases either feeble-mindedness or some other defect of the nervous system." The number of criminals who are in some way neurotically tainted is placed by some psychologists at 50 per cent or more of the total prison population.

Other defectives.— Says Johnson:

Add to these a number of epileptics (over 10,000), tramps, prostitutes, beggars, and others whom the census enumerator finds it difficult to catch, and the total number of possible undesirable parents becomes very large. There are over 5,000 inebriates and drug addicts receiving care in institutions at public expense all the time. It is in fact much larger than appears in these figures, because of the fact that many people carry defects that are latent and only appear in the offspring of a marriage representing two tainted strains. Thus the feeble-minded child usually, if not always, has feeble-mindedness in both his father's and mother's ancestry, and for every one of the patent feeble-minded above enumerated, there may be several dozen latent ones, who are themselves probably normal in every way and yet carry the dangerously tainted germ-plasm. The estimate has frequently been made that the United States would be much better off eugenically if it were deprived of the future racial contributions of at least 10 per cent of its citizens. While literally true, this estimate is too high for the group which could be considered for attempts to directly control in a practical eugenics program.

It thus appears that we are all the while caring for about 2,000,000 people in our various public and private hospitals, dispensaries, "homes," asylums, and other institutions of correction, charity, and "uplift."

Statistics gathered by Davenport and his pupils showed that mental defectives constitute at the present time, not less than 1 per cent of the total population, and defectives of other

sorts have multiplied to such a degree that, according to Laughlin, not less than 10 per cent of the present population of the United States must be regarded as so unfit that they ought not to be permitted to multiply their kind. Of 2,500,000 children born each year, not less than 300,000 die before they are a year old, and of those that die, probably not less than half perish simply because they are unfit to live.

THE BIOLOGIST'S ATTITUDE

Modern civilized races are proud of their ability to control nature in various ways; and it is an insult to our intelligence to intimate that we cannot control human reproduction so as to deliver society from the burden and disgrace of having to support about 1,000,000 helpless defectives and dangerous degenerates. The cost of maintaining this vast "aristocracy of the unfit" is somewhere in the neighborhood of \$500,000,000 a year; it directly costs \$100,000,000 a year for institutional maintenance alone.

Suppose a new disease plague should descend upon us which would strike down 3 or 4 per cent of the population, not merely rendering them inefficient, but actually throwing the whole number of smitten individuals on the community for their entire support at a cost of over \$100,000,000 annually. What would we think? What would we do? Just because these things, in a measure, have always been, we are accustomed to the burden and pay little or no heed to its final threat of our very stability and existence.

One biologist sums up the proposition thus:

Natural selection, in the early days of man's history, would have killed off many of these people early in life. They would have been unable to compete with their physically and mentally more vigorous fellows and would have died miserably by starvation or violence. Natural selection's use of the death-rate was a brutal one, but at least it prevented such traits as these people show from increasing in each generation. Eugenists hope to arrive at the

same result, and not by the death-rate but by the birth-rate. If germinally antisocial persons are kept humanely segregated during their lifetime, instead of being turned out after a few years of institutional life and allowed to marry, they will leave no descendants, and the number of congenital defectives in the community will be notably diminished. If the same policy is followed through succeeding generations, the number of defectives, of those incapable of taking a useful part in society, will become smaller and smaller.

RACIAL ISHMAELITES

Nearly always the preponderance of defective strains are a result of consanguineous matings, and for the sake of illustrating the danger to heredity through the introduction and reproduction of such defective strains it is permissible to cite two well-known cases: "The progeny of Belle Jukes is a dreary monotony of harlotry and licentiousness to the fifth generation," which cost the state of New York more than \$1,700,000 in 75 years; and the Nam family, which has imposed a financial burden of \$1,500,000 during the same period, "not directly in the care, but indirectly, in the damage they have done."

Out of 1,200 descendants from the founder of the "Jukes" through 75 years, 310 were professional paupers, who spent in all 2,300 years in poorhouses, 50 were prostitutes, 7 murderers, 60 habitual thieves, and 130 common criminals. The loss of potential usefulness, cost of prosecutions, expense of maintenance of jails, etc., Dugdale estimated to be over \$1,000 for each member of the family. All these unfortunate results could have been avoided had the original criminals in this family been segregated or else sterilized.

Among other cases where whole colonies of defectives spring from a single ancestor we have as illustrations the "Ishmaelites" of Indiana, whose descendants are today intermarried with more than 200 other families who have begotten murderers, prostitutes, and a large number of illegitimates. In Rhode Island there exists a whole colony

of deaf-mutes — the result of consanguineous matings of defective and related strains.

This "Tribe of Ishmael," numbering 1,692 individuals in six generations, has produced 121 known prostitutes and has bred hundreds of petty thieves, vagrants, and murderers. The history of the tribe is a swiftly moving picture of social degeneration and gross parasitism, extending from its seventeenth-century convict ancestry to the present-day horde of wandering criminal and defective descendants.

In Kentucky there is the Owen family. From the original four children have sprung, since about 1850, a total of 1,750 individuals, among them 121 prostitutes, with a long criminal record and a number of murders.

Extreme examples such as the above are necessary to drive these incontrovertible facts into the public consciousness and to illustrate the utter recklessness of permitting the admission into this country of feeble-minded, epileptic, insane, and imbecile immigrants who, together with their progeny, eventually reach the hospitals, almshouses, and prisons of the state.

During the years from 1914-1918, during which time the federal government suspended deportation of immigrants to belligerent countries, 4,000 excludable aliens were allowed to remain in this country, 1,723 of whom were insane, and 195 suffering from some loathsome disease.

THE DEFECTIVE "L." FAMILY

In a rural part of Pennsylvania lives the "L." family. Three generations studied by expert field investigators, who found that:

. . . all show the same drifting, irresponsible tendency. No one can say they are positively bad or serious disturbers of the communities where they may have a temporary home. Certain members are epileptic and defective to the point of imbecility. The father

of this family drank and provided little for their support. The mother, though hard working, was never able to care for them properly. So they and their twelve children were frequent recipients of public relief, a habit which they have consistently kept up. Ten of the children grew to maturity, and all but one married and had in their turn large families. With two exceptions these have lived in the territory studied. Nobody knows how they have subsisted, even with the generous help they have received. They drift in and out of the various settlements, taking care to keep their residence in the county which has provided most liberally for their support. In some villages it is said that they have been in and out half a dozen times in the last few years. First one family comes slipping back, then one by one the others trail in as long as there are cheap shelters to be had. Then rents fall due, neighbors become suspicious of invaded hen roosts and potato patches, and one after another the families take their departure, only to reappear after a year or two.

The seven children of the eldest son were scattered years ago through the death of their father. They were taken by strangers, and though kept in school, none of them proved capable of advancement. Three at least could not learn to read or handle the smallest quantities. The rest do this with difficulty. All but two are now married and founding the fourth generation of this line. The family of the fourth son are now county charges.

Of the fourteen children of school age in this and the remaining families, all are greatly retarded. One is an epileptic, and at 16 years old cannot read or write. One at 15 is in the third reader and should be set down as defective. The remainder are from one to four years retarded.

There is nothing striking in the annals of this family. It comes as near the lowest margin of human existence as possible and illustrates how marked defect may sometimes exist without serious results in the infringement of law and custom. Its serious menace, however, lies in the certain marriage into stocks which are no better, and the production of large families which continue to exist on the same level of semi-dependency. In place of the two dependents of a generation ago we now find in the third generation thirty-two descendants who bid fair to continue their existence on the same plane—certainly an enormous multiplication of the initial burden of expense.

From cases of this sort, which represent the least striking kind of bad breeding, the student may pass through many types up to the great tribes of Jukes, Nams, Kallikaks, Zeros, Dacks, Ishmaels, Sixties, Hickories, Hill Folk, Piney Folk,

and the rest, with which our readers are familiar. It is abundantly demonstrated that most of their trouble is the outcome of bad heredity.

Those who see in improvement of the environment the cure for all such plague spots as these tribes inhabit, overlook the fact that "man largely creates his own environment." The story of the tenement dwellers who were supplied with bathtubs, but refused to use them for any other purpose than to store coal, but further illustrates this fact.

THE ZERO FAMILY

Probably the most complete family history of this kind ever worked out is that of the Zero family — a Swiss family — whose pedigree has been recently unraveled in a splendid manner by Jörger. In the seventeenth century this family divided into three lines; two of these have ever since remained valued and highly respected families, while the third has descended to the depths. This third line was established by a man who was the result of two generations of intermarriage, the second tainted with insanity. He was of roving disposition, and in the Valla Fontana found an Italian vagrant wife of vicious character. Their son inherited fully his parental traits and himself married a member of a German vagabond family — Marcus, known to this day as a vagabond family. This marriage sealed the fate of their hundreds of descendants. This pair had seven children, all characterized by vagabondage, thievery, drunkenness, mental and physical defect, and immorality. In 1905, 190 members of this family were known to be living, and probably many living are unknown on account of illegitimate birth.

In 1861 a sympathetic and charitable priest attempted to save from their obvious fate many of these "Zero" children and others who resided in and near his village, by placing them in industrious and respectable families to be reared

under more favorable auspices. The attempt failed utterly, for every one of the Zero children either ran away or was enticed away by his relatives.

The blame for such an atrocity as this family, or the Jukes, does not rest with these persons themselves. It must be placed squarely upon the shoulders and consciences of the intelligent members of society who have permitted these pre-determined degenerates to be brought into the world, and who are today taking no broadly sympathetic view of their treatment by exercising preventive measures.

As an interesting example we have another family described by Poellmann. This was established by :

. . . . two daughters of a woman drunkard who in five or six generations produced all told 834 descendants. The history of 709 of these are known. Of the 709, 107 were of illegitimate birth; 64 were inmates of almshouses; 162 were professional beggars; 164 were prostitutes; 130 were convicted criminals; 60 were habitual thieves; 7 were murderers. Not one had even a common-school education. Only 20 learned a trade, and 10 of these learned it in state prisons. They have cost the state over \$1,250,000, and the cost is still going on. Who pays this bill? What right had an intelligent and humane society to allow these poor unfortunates to be born into the kind of lives they had to lead, not by choice but by the disadvantage of birth? Darwin wrote long ago: ". . . . except in the case of man himself, hardly anyone is so ignorant as to allow his worst animals to breed."

THE SITUATION IN ILLINOIS

In appealing to the State Legislature of Illinois for the enactment of suitable laws looking towards the better handling of the problem of delinquents and defectives, Charles H. Thorne, Director State Department of Public Welfare said :

The feeble-minded criminal is at last being placed in the lime-light, which is a most hopeful sign of progress.

It is time, because with all of the wild and terrifying statements the truth has not been half told.

The cold fact is that the problem is greater than are the facilities of society to cope with it by present methods.

Feeble-mindedness represents a structural brain defect and is incurable, unimprovable, and degenerative.

The idiots and imbeciles can be recognized at sight and are not a menace because they can be cared for only in institution and rapidly move at an early age into their custody.

It is the moron without judgment, who is both the direct and the indirect menace to society; direct because from them are recruited the prostitutes, mothers of illegitimate children, and sex perverts; indirect, because they are prolific and certain breeders of their own kind. Once in the blood the menace is continuous; for even the normal child of a feeble-minded parent may become the parent of feeble-minded children, or the condition may not reappear before the grandchildren or great-grandchildren.

The following gives the latest estimates of the extent of feeble-mindedness and is based upon the report of Dr. A. J. Rosanoff (made in 1916 for the National Committee of Mental Hygiene) which contains probably the most accurate figures now obtainable on mental deficiency. Dr. Rosanoff made an accurate census of the entire population, above school age, of the county of Nassau in New York State. This county was selected as being typical of the state in regard to proportion of urban and rural dwellers, immigrants, stable residents, etc. The population was 115,827. The definite abnormality per 100,000 was:

Insanity	341.0
Feeble-mindedness	546.5
Epilepsy	62.2
Inebriates, criminals, prostitutes, etc.....	424.8
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Total	1,374.5

The social maladjustments of the cases of abnormality were grouped as follows:

Retardation in school.....	145.9
Truancy, unruliness, etc.....	17.5
Sex immorality	100.2
Criminal tendencies	65.2
Vagrancy	1.7
Dependency	242.8

Inebriety	276.3
Drug habits	3.5
Domestic maladjustments	12.1
Medical cases	49.1
Other groups (mainly those in institutions)....	319.5
No maladjustments	140.7
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Total	1,374.5
Treatment considered necessary:	
Institutional care	816.7
Other treatment	392.0
None	165.8
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Total	1,374.5

APPLIED TO ILLINOIS

Applied to the State of Illinois this would mean that with a population of 6,193,626 (United States Census Bureau estimate for 1917) there are:

Insane	21,120
Feeble-minded	38,848
Epileptic	3,852
Inebriates, criminals, etc.....	26,310
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Total	85,130

The need for treatment would be:

Institution care	50,584
Other treatment	24,279
None	10,267
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Total	85,130

To meet these conditions the state possesses:

Eight hospitals for insane, housing 18,000, which indicates that we are almost up with the insane problem.

One institution for epileptics, which soon will be able to care for all who need care.

One home for dependent children, which can handle only the most pressing cases.

One reformatory for youths, containing a large number

of mental defectives who eventually must be discharged, but who should be kept for life.

Two prisons for men and one for women, also containing a large number of mental defectives who should be kept for life.

Two correctional schools, one for boys and one for girls, and both, especially the one for girls, being temporary homes for mental defectives who must be discharged at 21 years of age whether they should be or not.

One institution for feeble-minded, with 2,335 inhabitants.

THOSE THAT ARE NEEDED

Authority and appropriations are being asked for another institution for feeble-minded, which, if obtained, will ease the pressure a little, although it is obvious that four or five more are needed and eventually must be provided.

There is a great demand for, and an early state venture, should be, an institution for the segregation of what are known as the mentally defective, delinquent, or the feeble-minded with criminal activities of a violent, destructive character.

It will be possible to determine who should be sent to such a place only after long observation and careful, conservative, well-balanced study.

The present commitment law is sufficient, as any person of doubtful mentality may be subjected to the proper preliminary study and if mental deficiency is established commitment can be made.

The trouble lies not in the law but in the lack of sufficient plants.

SUMMARY OF THE CHAPTER

1. We are supporting an idle population of defectives equal to 1 per cent of the total population at an annual expense of more than \$100,000,000.

2. These defectives are mostly registered in public institutions, and yet we permit most of them to continue to reproduce their undesirable kind.

3. Natural selection — so thinks Lankaster — has about ceased to operate in the case of the modern civilized races.

4. We have assembled in our various public institutions a vast "aristocracy of the unfit," who enjoy life at the expense of the industrious taxpayers.

5. In this country we have over 100,000 blind — 50,000 totally blind, 19 per cent have blind relatives and almost 5 per cent result from cousin marriages.

6. We have 100,000 deaf and dumb. Over 12,000 deaf from birth. Again about 5 per cent are offspring of cousin marriages; 32.1 have deaf relatives.

7. There are probably not less than 250,000 insane in this country; and the feeble-minded are approximately the same in number.

8. There are almost 100,000 paupers in the almshouses of this country; 88,000 were admitted in one year, the total number, therefore, probably numbers several hundreds of thousands.

9. There are over 100,000 criminals in our various penal institutions, exclusive of over 25,000 juvenile delinquents.

10. There are over 5,000 drug victims receiving public care; about 10,000 epileptic, not to mention a vast army of tramps, prostitutes, and beggars, who also belong to this great "aristocracy of the unfit."

11. The greatest menace of all are those normal appearing individuals who are "carriers" of these latent strains of defectiveness — who may enter into good lines of heredity and thus fatally degenerate our otherwise good stock.

12. It appears that we are constantly caring for over 2,000,000 of these "unfit" in the public and private institutions of this country.

13. Laughlin asserts that fully 10 per cent of our present population is unfit to reproduce itself.

14. It is a disgrace to modern society that it does not deliver itself from this burden of supporting over 1,000,000 helpless defectives and dangerous degenerates.

15. The total cost of maintaining this vast army of the

unfit is over \$500,000,000 a year, \$100,000,000 for institutional care alone.

16. What would we think of a new disease which would strike down and cripple for life 3 or 4 per cent of our population? That is what unrestricted reproduction of defectives is doing.

17. The "Jukes" cost the state of New York almost \$2,000,000 in 75 years. The Nam family \$1,500,000 during the same period.

18. Among 1,200 Jukes descendants there were: 310 paupers, 50 prostitutes, 7 murderers, 68 thieves, 130 criminals.

19. The "Tribe of Ishmael" numbering 1,692 individuals, in six generations produced 121 prostitutes, and numberless thieves, vagrants, and murderers.

20. A study of the "L." family serves to show that shiftlessness and general irresponsibility are largely hereditary.

21. The Zero family tends to show that well-meant charitable and reformatory work will not annul the inexorable laws of human heredity.

22. In the case of the Poellmann family, 709 descendants are known, of which 107 are illegitimate, 64 in almshouses, 162 professional beggars, 164 prostitutes, 130 convicted criminals, 60 habitual thieves, 7 murderers.

23. In a New York State survey, the following per 100,000 of population were discovered: insanity 341.0; feeble-mindedness 546.5; epilepsy 62.2; inebriates, criminals, and prostitutes 424.8, total 1,374.5.

24. Applied to Illinois this rate would mean: insane 21,120; feeble-minded 38,848; epileptic 3,852; criminals, prostitutes, etc., 26,310, total 85,130.

CHAPTER XXIV

DESIRABILITY OF RESTRICTING THE UNFIT

THERE are just two ways of trying to improve the human race from the standpoint of heredity. One is to seek to increase the rate of marriage and reproduction, of the more desirable elements of society — considered from a eugenic viewpoint; the other method consists in all possible and practical efforts looking towards the restriction of the marriage and reproduction of the defective and degenerate classes.

A RESTRICTIVE PROGRAM

The restrictive eugenic program has been formulated by one biologist thus:

We suggest nothing more than that individuals whose offspring would almost certainly be subversive of the general welfare, be prevented from having any offspring. In most cases, such individuals are, or should be, given life-long institutional care for their own benefit, and it is an easy matter, by segregation of the sexes, to prevent reproduction. In few cases it will probably be found desirable to sterilize the individual by a surgical operation. Such coercive restriction does, in some cases, sacrifice what may be considered personal rights. In such instances, personal rights must give way before the immensely greater interests of the race. But there is a much larger class of cases, where coercion cannot be approved, and yet where an enlightened conscience, or the subtle force of public opinion, may well bring about some measure of restraint on reproduction. This class includes many individuals who are not in any direct way detrimental to society; and who yet have some inherited taint or defect that should be checked, and of which they, if enlightened, would probably be the first to desire the elimination. The number of high-minded persons who deliberately refrain from marriage, or parenthood, in the interests of posterity, is greater than anyone imagines, except a eugenicist brought into

intimate relations with people who take an intelligent interest in the subject.

Of course there are many cases on the borderline — cases difficult to decide. Shall a given individual whose family history is tainted with epilepsy or insanity marry or not marry? This is the most difficult problem of applied eugenics. It is also a purely personal one — one which the individual, and not society, must settle. We cannot accept the sweeping generalization sometimes made that "strength should marry weakness and weakness marry strength." No more can we hold fast to the ideal, which we believe to be utopian, that "strength should only marry strength." There are cases where such glittering generalities are futile; where the race and the individual would both be gainers by a marriage which produced children that had some family taint, but only latent or in but slight degree.

The mating of strength with strength is certainly the ideal which society, as well as every individual, should have.

* But human heredity is so mixed that this ideal is not always practicable; and if any two persons wish to abandon it, society is hardly justified in interfering, unless the case be so gross as those which we have already discussed. Progress in this direction is to be expected mainly from the enlightened action of the individual. Much more progress in the study of heredity must be made before advice on marriage matings can be given in any except fairly obvious cases. The most that can now be done is to urge that a full knowledge of the family history of an intended life partner be sought, to encourage the discreet inquiries and subtle guidance of parents, and to appeal to the eugenic conscience of a young man or woman. In case of doubt the advice of a competent biologist should be taken. There is a real danger that high-minded people may allow some minor physical defect to outweigh a greater mental excellence.— Poponoe and Johnson.

CHANGING ATTITUDES TOWARD THE SUBNORMAL

In ancient times, the feeble-minded were regarded as persons who stood outside the pale of humankind, having

forfeited all human rights either because they were "demons possessed," "accursed of the gods," or because they were peculiar (hence "idiots") solitary persons who were incapable of human intercourse. The deliberate neglect or abandonment of idiots to their fate was countenanced by the laws of Lycurgus, and was openly practiced by the Spartans. Cicero intimates that the practice also flourished among the Romans.

The teaching of the Christian religion has gradually wrought an improvement in the treatment of the defective classes, as well as of the "demented" classes. St. Paul's injunction to "comfort the feeble-minded" (1 Thess. 5:14), probably refers to the mentally weak. Christ set a good example by pitying the demoniac and idiotic children who were brought to him.

During the Middle Ages the attitude assumed toward the feeble-minded was ever changing. The court jesters and buffoons are said originally to have been imbeciles, while imbeciles furnished a good deal of the entertainment in the castles of the rich.

This attitude of frivolity, however, soon changed to one of superstitious reverence. "The senseless, silly chatter of the imbecile became the revelation of 'heavenly infants,' or 'infants of the good God.'" Imbeciles were thought to be under the special protection of the dieties and to hold communication with the unknown.

But, as Wallin states: "Persecution usually follows in the wake of superstition and fanaticism, and so ancient cruelties were re-enacted during the period of the Renaissance and the Reformation. Imbeciles were again persecuted and reviled." Luther and Calvin openly denounced them as possessed of the evil spirit, "filled with Satan." At this time the first organized public effort upon any scale to provide for the physical care and comfort of the feeble-minded in a

residential institution was begun. This attempt was made in France in the middle of the seventeenth century by St. Vincent de Paul and his *Confrérie de Charité*.

Seguin entered upon his work in 1837 when, at the age of twenty-five, he founded a private school in Paris, the first successful school expressly established for the training of idiots. After eighteen months of labor he had taught a feeble-minded child to "make good use of the senses, to compare, remember, speak, write, and count." The success of his "physiological education of all the senses" attracted visitors from all over the civilized world, and won for him, in 1842, the directorship of the enlarged school for idiots at the Bicêtre. At the time of the revolution in 1848 Seguin emigrated to America, where he was instrumental in founding the early American state institutions. He served for a short time as the superintendent of the Massachusetts School for Idiotic and Feeble-minded Youth in South Boston, now located at Waverley, assisted in the organization of the state institution at Syracuse, New York, and was associated in the direction of the Pennsylvania Training School for Idiotic and Feeble-Minded Children in Philadelphia (now located at Elwyn). On January 1, 1880, he opened a private school in New York City (now located in Orange, New Jersey), but came to his death the following October.

Seguin sincerely believed that his methods would revolutionize the training of normal children and were destined to become the "basis of the education of mankind." Certain it is that his work became the model and inspiration of the subsequent educational work and social care of the feeble-minded, both in and out of publicly supported institutions. "It gave the real impetus toward the organization of separate public training institutions for the feeble-minded, which later led to the founding of custodial and farm-colonies for the feeble-minded and the epileptic."

RESTRICTION SUMMARIZED

The program for the prevention of propagation of defectives and degenerates may be stated and summarized under four heads:

1. *Education*.—Efforts to enlighten the defectives are foredoomed to failure, but the education of the more intelligent classes may help solve these eugenic problems by teaching the public the fact that so much of human misery and misfortune is largely preventable and may be controlled by proper social regulation.

2. *Restrictive legislation*.—Restrictive legislation is well intended, but has signally failed as a preventive measure, for the evident reason that it only adds illegitimacy to degeneracy, and thus the children enter on life's battle doubly handicapped. Minnesota has a law providing that within the bounds of the state no marriage shall be permitted, either party to which is epileptic, imbecile, feeble-minded, or afflicted with insanity, unless the woman be over 45 years old. Michigan, Delaware, Connecticut, Indiana, New Jersey, and North Dakota have also passed laws for the purpose of preventing marriage among defectives.

3. *Segregation*.—Segregation would be an ideal and humane method of eliminating those who are incapable of having normal offspring. The segregation of all degenerates and defectives would be an enormous and impractical task. Further, the great difficulty is to detect the unfit individual who starts a strain of defectives and degenerates. "It is evidently a hopeless task to know where to draw the line between the fit and the unfit, so that for the present we must be satisfied to enforce restrictive measures upon only those who are evident and well-marked examples."

Insane asylums, homes for epileptics, reformatory schools, as well as special hospitals and institutions for advanced

cases must not be regarded as preventive measures in the true sense, for such segregation provides care and comfort as a terminal measure; that is, it is usually a last resort. Frequently defectives propagate their kind before and sometimes after they are segregated.

4. *Surgery*.—Surgery has been proposed as a means of controlling the propagation of defectives. This is done either by severing the vas deferens or the Fallopian tube. At the Indiana Reformatory the law¹ of that state is carried out providing for the sterilization of defectives. The operation of vasectomy consists of ligation and resection of a small portion of the vas deferens. The operation is very simple and easy to perform. It may be done with a local anesthetic in about three minutes, and the subject returns to his work immediately, suffering no inconvenience and in no way hampered in his pursuit of life, liberty, and happiness, but is effectively sterilized. In 456 cases Dr. Sharp reports no unfavorable symptoms.²

¹ The Indiana sterilization law reads as follows:

Whereas, Heredity plays a most important part in the transmission of crime, idiocy, and imbecility;

Therefore, Be it enacted by the General Assembly of the State of Indiana, that on and after the passage of this act it shall be compulsory for each and every institution in the state, entrusted with the care of confirmed criminals, idiots, rapists, and imbeciles, to appoint upon its staff, in addition to regular institutional physician, two (2) skilled surgeons of recognized ability, whose duty it shall be in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers. If, in the judgment of this committee of experts and the board of managers, procreation is inadvisable and there is no probability of improvement of the mental and physical condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and most effective. But this operation shall not be performed except in cases that have been pronounced unimprovable.

² Since this was written the State Supreme Court has declared the sterilization law unconstitutional. The principal point taken is that the statutes do not give the person concerned a hearing before

The operation on the female is somewhat more difficult, but if carefully done no more hazardous. The Fallopian tubes are reached through a median incision and ligated near the uterus and severed beyond the ligature.

Opinions vary greatly concerning the propriety of sterilizing criminals, insane, degenerates, and defectives generally. There is no doubt concerning its effectiveness. Even in perfectly clear cases, such as the insane, the epileptic, or the high-grade degenerate, the harm has often been done before the operation has been decided upon. The author is not blind to the possibilities for abuse in the procedure of sterilization, but nevertheless thinks that at some future time the opportunities for personal injustice may be so minimized that the operation will come into general use in the management of certain classes of clear-cut and undoubted racial degeneracy and hopeless defectiveness.

These four methods do not take into consideration the ancient practices of execution and castration; for both practices are not to be considered in connection with any twentieth-century program for race improvement.

We are not unmindful of a certain objection to sterilization, viz. that, "It is likely to lead to the spread of sexual immorality and venereal disease." This objection is entitled to some consideration; and there exists still another objection against sterilization as a program. Most of the persons whom it is proposed to sterilize are utterly unfit to hold their own in the world, in competition with normal people. For society to sterilize the feeble-minded, the insane, the alcoholic, the born criminals, the epileptic, and then turn them out to shift for themselves, saying, "We have no further concern with you, now that we know you will leave no

a judicial body where he may present his side of the case and evidence. The question was also raised as to sterilization being an extra punishment not ordered by a court.

children behind you," might be unwise. People of this sort should be humanely isolated, so that they will be brought into competition only with their own kind; and they should be kept so segregated, not only until they have passed the reproductive age, but until death brings them relief from their misfortunes.

THE PERSONAL LIBERTY DOCTRINE

It is constantly urged that the state should not interfere with an individual matter of this sort! "It is an intolerable invasion of personal liberty; it is reducing humanity to the level of the barnyard; it is impossible to put artificial restraints on the relations between the sexes, founded as they are on such strong and primal feelings."

The doctrine of personal liberty, in this extreme form, was enunciated and is maintained by people who are ignorant of the laws of heredity.¹ Nature reveals no such extreme "law of personal liberty," and the race that tries to carry such a supposed law to its logical conclusion will soon find, in the supreme test of competition with other races, that the interests of the individual are much less important to nature than the interests of the race. "Perpetuation of the race is the first end to be sought. So far as according a wide measure of personal liberty to its members will compass that end, the personal liberty doctrine is a good one; but if it is held as a metaphysical dogma, to deny that the race may take any action necessary in its interest, at the expense of the individual, this dogma soon becomes suicidal."

As for "reducing humanity to the level of the barnyard,"

¹ This applies even to such an acute thinker as John Stuart Mill, whose ideas were formed in the pre-Darwinian epoch, and whose works must now be accepted with great reserve. Darwin was quite right in saying, "The ignoring of all transmitted mental qualities will, as it seems to me, be hereafter judged as a most serious blemish in the works of Mr. Mill." *Descent of Man*, p. 98.

this is merely a catch-phrase intended to arouse prejudice and to obscure the facts. The reader may judge for himself whether the eugenic program will degrade mankind to the level of the brutes, or whether it will ennoble it, beautify it, and increase its happiness. The delusion which so many people hold, that it is impossible to put artificial restraint on the relation between the sexes, is amazing. "Every civilized nation already puts restrictions on numerous classes of people, as has been noted — minors, criminals, and the insane, for example. Even though this restriction is usually based on legal, rather than biological grounds, it is nevertheless a restriction, and sets a precedent for further restrictions, if any precedent were needed."

A quotation from the *Principles of Political Economy*¹ will give an idea of Mr. Mill's point of view: "Of all the vulgar methods of escaping from the effects of social and moral influences on the mind, the most vulgar is that of attributing diversities of conduct and character to inherent natural differences."

It is, we conclude, both desirable and possible to enforce certain restrictions on marriage and parenthood. What these restrictions may be, and to whom they should be applied, is the real problem which confronts us.

RESTRICTIVE MARRIAGE

In all matters of property rights, public-health questions, and in numerous other channels of human activities, society asserts and enforces its superiority over the individual; but when it comes to the perpetuation of the race, the individual still reigns supreme. Civilized society cannot return to the law of the jungle where race is determined by natural selection, so we must seek out some sort of compromise which will be acceptable to the ideals of our civilization and at

¹ Vol. I, p. 389.

the same time afford some sort of protection to the future of the race. In our present state of enlightenment and public opinion, perhaps the first step in restrictive eugenics had best concern itself with marriage restriction -- the improvement in our marriage laws. Says one authority:

There are millions of men in civilized countries whose mental equipment places them on a plane with barbarians or savages, and they have on the average more offspring than their civilized contemporaries. There are millions of others who are so seriously defective in body or mind, owing to hereditary causes, that they can never take care of themselves and must always be a charge upon the state, and yet in many civilized countries they are permitted to perpetuate their kind and produce a never-ending supply of mental and moral defectives, whose maintenance must seriously interfere with the proper education and development of the normal population and whose unrestrained existence constantly threatens to pollute purer streams of heredity. The practice of society regarding marriage and reproduction up to the present has been to allow all sorts, good, bad, and indifferent, to propagate with the belief that good environment and training will make up for deficiencies of birth.

But recently the conviction has been growing that good environment is far less important than good heredity and that in some way society must influence the race of men at its source.

One author thinks dysgenic traits should constitute sufficient grounds for divorce. He says:

We consider it a crime for people to marry, without knowing each other's family histories. But in spite of all this, ill-assorted, dysgenic marriages will still be made. When such a marriage is later demonstrated to have been a mistake, not only from an individual, but also from a eugenic point of view, society should be ready to dissolve the union. Divorce is far preferable to mere separation, since the unoffending party should not be denied the privilege of remarriage, as the race in most cases needs his or her contribution to the next generation. In extreme cases it would be proper for society to take adequate steps to insure that the dysgenic party could neither remarry nor have offspring outside of marriage. The time-honored justifiable grounds for divorce -- adultery, ster-

ility, impotence, venereal infection, desertion, non-support, habitual cruelty, appear to us to be no more worthy of legal recognition than the more purely dysgenic grounds of chronic inebriety, feeble-mindedness, epilepsy, insanity, or any other serious inheritable physical, mental, or moral defect.

This view of the eugenic value of divorce should not be construed as a plea for admission of mutual consent as a ground for divorce. It is desirable, however, to realize that mismating is the real evil. Divorce in such cases is merely a cure for an improper condition. "Social condemnation should stigmatize the wrong of mismating, not the undoing of such a wrong."

Restrictions on age at marriage are almost universal. The object is to prevent too early marriages. The objections which are commonly urged against early marriages (in so far as they bear upon eugenics) have been stated as follows:

1. That it results in inferior offspring. This objection is not well supported except possibly in the most extreme cases. Physically, there is evidence that the younger parents on the whole bear the sounder children.

2. That a postponement of marriage provides the opportunity for better sexual selection. This is a valid ground for discouraging the marriages of minors.

3. The better-educated classes are obliged to marry late, because a man usually cannot marry until he has finished his education and established himself in business. A fair amount of restriction as to age at marriage will therefore not affect these classes, but may affect the uneducated classes. In so far as lack of education is correlated with eugenic inferiority, some restriction of this sort is desirable because it will keep inferiors from reproducing too rapidly, as compared with the superior element of the population.

While the widespread rule that men should not marry under 21 years and women under 18 years has some justifi-

cation, then, an ideal law would permit exceptions where there was adequate income and good mating.

WHY PERPETUALLY SUPPORT DEFECTIVES?

Many persons do not seem to be able to comprehend a problem until it is put upon a dollars and cents basis. For all such let us summarize the economic side of racial degeneracy thus: Why should the able and worthy and thrifty members of society continue to be compelled to pay, as they are in this country alone, \$150,000,000 annually, not to mention the vast sums voluntarily contributed toward "charitable" purposes, for the support of the criminal and pauper and defective classes who themselves contribute nothing of value and whose very existence is evidence of criminal disregard of the right of every individual to be well born, into a healthy and sane life? The only answer, if it be an answer, is — because the competent are willing to foot the bill. We uncomplainingly pay millions for tribute but not one cent for defense. And yet a penny's worth of defense outweighs a million's worth of cure.

One who does not believe that these people hand on their traits to their descendants may profitably consider the famous history of the so-called Jukes family, a strain originating among the "finger lakes" of New York, whose history was published by R. L. Dugdale as far back as 1877 and lately restudied by A. H. Estabrook.¹

From one lazy vagabond nicknamed "Jukes" born in 1720, whose two sons married five degenerate sisters, six generations numbering about 1,200 persons of every grade of idleness, viciousness, lewdness, pauperism, disease, idiocy, insanity, and criminality were traced. Of the total seven generations, 300 died in infancy; 310 were professional paupers, kept in almshouses a total of 2,300 years; 440 were physically wretched by their own "diseased wickedness;" more than half the women fell into prostitution, 130 were convicted

¹ *The Jukes in 1915*, Carnegie Institution, Washington, 1916.

criminals; 60 were thieves; 7 were murderers, only 20 learned a trade, 10 of these in state prisons, and all at a state cost of over \$1,250,000.

The clan has now reached its ninth generation and numbers 2,820 individuals, of whom half are still living. In the early eighties they left their original home and are now scattered all over the country. The change in environment has enabled some of them to rise to a higher level, but on the whole, says C. B. Davenport in a preface to Estabrook's book, they "still show the same feeble-mindedness, indolence, licentiousness, and dishonesty, even when not handicapped by the associations of their bad family name and despite the fact of being surrounded by better social conditions."

How heredity works both ways, is shown by the history of the Kallikak family, published by H. H. Goddard a few years ago.

At the beginning of the Revolutionary War a young man, known in the history as Martin Kallikak, had a son by a nameless, feeble-minded girl, from whom there have descended in the direct line 480 individuals. Of these 143 are known to have been feeble-minded, and only 46 have been known to be normal. The rest are unknown or doubtful. Thirty-six have been illegitimate; 33, sexually immoral, mostly prostitutes; 24 alcoholic; 3 epileptic; 82 died in infancy; 3 were criminal, and 8 kept houses of ill-fame. After the war, Martin Kallikak married a woman of good stock. From this union have come in direct line 496, among whom only 2 were alcoholic, and 1 known to be sexually immoral. The legitimate children of Martin have been doctors, lawyers, judges, educators, traders, landholders, in short, respectable citizens, men and women prominent in every phase of social life. These two families have lived on the same soil, in the same atmosphere, and in short, under the same general environment, yet the bar sinister has marked every generation of one and has been unknown in the other.

SCRUTINIZE THE IMMIGRANT

The inevitable introduction of severe functional nervous disturbances, insanity, feeble-mindedness, as well as an ex-

cessive amount of venereal disease through immigration is a threat always hanging over this nation's head. There are now in this after-war period, millions of widows and orphans, many of whom are seeking a domicile in this country to join relatives and friends. After years of agonizing distress and undernourishment many of these persons particularly the children, are physically and mentally subnormal. We cannot hope that the renewed immigration will bring in, even among those who cannot be excluded, the hardy stock of bygone years. (See Fig. 18.) We are facing a definite weakening of the very fiber upon which our stability as a nation is founded. Bitter are the casualties of war, but of a bitterness far more intense are the casualties of peace — our failure to protect the social integrity of the nation.

Some economic evils we may not be able to prevent, but the deliberate and indeed iniquitous introduction of the unfit into the commonwealth is unnecessary and unjust to both our native and foreign-born population, and should be forever prevented by the most drastic legislation.

"There is no wealth but life," says Ruskin, and if, as some scientists assert, the human race has not improved very much in quality in the last hundred years, it behooves us to take most positive steps to prevent a decided retrogression during the next century; and inasmuch as the constant depletion in the ranks of the fit but increases the danger of multiplying the unfit, we have in the next few years just about double the danger to face with half the resources with which to combat it.

Should these present-day conditions continue, one can predict very accurately what will happen in the future. When a people or a race is lowered in its character and efficiency, the apex of its grandeur has been reached. History will repeat itself. Greece, Rome, and Egypt can credit their

decline and downfall largely to a lowering of the quality of their men. Whether we as a nation can bring any radical changes about in our generation is problematical, but we should put forth every effort toward preventing the making of our own problems more difficult as a result of failure properly to control immigration.

The nation has room for other millions of mentally and physically sound immigrants, whom it can well afford to protect and educate from an economic point of view. The financial resources of the government for such development and education should, however, not be curtailed by an unnecessary and finally useless expenditure for maintenance of those who are unfit and who multiply their unfit progeny in such alarming proportions. These conditions must be squarely met. They are not theories but well authenticated facts. They cannot be ignored. They brush aside all political considerations and become a most vital issue of the day.

DESIRABILITY OF RESTRICTIVE EUGENICS

To sum up in the words of an able thinker :

We believe that there are urgent reasons for and no objections to preventing the reproduction of a number of persons in the United States, many of whom have already been recognized by society as being so antisocial or inferior as to need institutional care. Such restriction can best be enforced by effective segregation of the sexes, although there are cases where individuals might well be released and allowed full freedom, either "on parole," so to speak, or after having undergone a surgical operation which would prevent their reproduction.

Laws providing for sterilization, such as a dozen states now possess, are not framed with the knowledge of the needs of the case; but a properly drafted sterilization law to provide for cases not better treated by segregation is desirable. Segregation should be considered the main method at present.



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Fig. 18. Ellis Island - - the gateway of the immigrant

It is practicable to place only minor restrictions on marriage, with a eugenic goal in view. A good banns law, however, could meet no objections and would yield valuable results. Limited age restrictions are proper.

Marriages of individuals whose families are marked by minor taints cannot justify social interference; but an enlightened conscience and a eugenic point of view should lead every individual to make as good a choice as possible.

If a eugenically bad mating has been made, society should minimize as far as possible the injurious results, by means of provision for properly restricted divorce.

Consanguineous marriages in a degree no closer than that of first cousins, are neither to be condemned nor praised indiscriminately. Their desirability depends on the ancestry of the two persons involved; each case should therefore be treated on its own merits. Present-day laws regulating cousin marriages are wholly unscientific.

Although conditions may be worse in the older and more densely populated states, it is probable that there is no state in the union which has not many families, or groups of families, of this dependent type. Half a dozen well-defined areas of this kind have been found in Pennsylvania, which is probably not exceptional in this respect.

These differ, of course, in extent and character and the gravity of the problems they present. In some there is great sexual laxity, which leads to various forms of dependency and sometimes to extreme mental defect. In others alcoholism prevails and the people show a propensity for deeds of violence. All informants, however, practically agreed to the following characterization:

1. Because of the thefts and depredations and the frequent applications for charitable relief from such sections they constitute a parasitic growth which saps the resources of the self-respecting, self-sustaining contingent of the population.
2. They furnish an undue proportion of court cases, and are thus a serious expense to county and state.
3. They are a source of physical decay and moral contamination, and thus menace the integrity of the entire social fabric.

THE ETHICS OF RESTRICTIVE EUGENICS

We think the time has come when but few persons will argue for the unqualified right of two manifestly feeble-minded individuals to get married and reproduce themselves; though many persons might claim for these defectives the right to marry after they had been rendered barren by sterilization. There are several ethical angles to this problem.

1. *The biologic aspects.*—The right to marry is commonly regarded as being an inalienable right of the individual—that is, if it does not in some manner seriously conflict with the rights of society—the welfare of the race.

The companionship of two persons between whom true love exists, is beyond all question the highest happiness possible, and one which society should desire and strive to give its every member. On that point there will be no difference of opinion, but when it is asked whether there can be a separation between the comradeship aspect and the reproduction aspect, in marriage, whether any interest of the race can justifiably divorce these two phases, often considered inseparable, protests are at once aroused. In these protests, there is some justice. We would be the last ones to deny that a marriage has failed to achieve its goal, has failed to realize for its participants the greatest possible happiness, unless it has resulted in sound offspring.

That word “sound” is the key to the distinction which must be made. The interests of the race demand sound offspring from every couple in a position to furnish them—not only in the interests of that couple—interests the importance of which it is not easy to overestimate—but in the interests of the future of the race, whose welfare far transcends in importance the welfare of any one individual, or any pair of individuals. “As surely as the race needs a constant supply of children of sound character, so surely is it harmed by a supply of children of inherently unsound character, physically or mentally, who may contribute others like themselves to the next generation.”

In view of these facts, one writer comments:

The Spartans and other peoples of antiquity fully realized this fact, and acted on it by exposing deformed infants. Christianity properly revolted at such an action, but in repudiating the action, it lost sight of the principle back of the action. The principle should have been regarded, and civilized races are now coming back to a realization of that fact—are, indeed, realizing its weight far more fully than any other people has ever done, because of the growing realization of the importance of heredity. No one is likely seriously to argue again that deformed infants (whether their deformity be physical or mental) should be exposed to perish; but the argument that in the interests of the future of the race *they would better not be born*, is one that admits of no refutation.

2. *The humanitarian side.*—Here we encounter our most difficult problems. It fires our charitable vanity and satisfies our mental ego to visit the children's ward in a large hospital and observe how tenderly the little ones are cared for. It touches our hearts to talk with the sensitive, but devoted, mother of some feeble-minded child: but notwithstanding all of our mutual "heart-throbs" and "heart-aches"—we must admit that all would have been better off if most of these defectives and deformed children had never been born. Most of these unfortunate little ones will grow up regretting that they were ever brought into the world. We are not unmindful of the occasional genius who may chance to be crippled physically but may be of considerable service to society; we refer to the more clearly defective and degenerate offspring of the definitely insane and feeble-minded parentage.

3. *The financial aspects.*—We have already referred to the enormous economic aspects of this eugenic problem.

Except students of eugenics, few persons realize how staggering is the bill annually paid for the care of defectives.

The amount which the state of New York expends yearly on the maintenance of its insane wards, is greater than it spends for any other purpose except education; and in a very few years, if its in-

sane population continues to increase at the present rate, it will spend more on them than it does on the education of its normal children.

The cost of institutional care for the socially inadequate is far from being all that these people cost the state; but those figures at least are not based on guesswork. The annual cost ¹ of maintaining a feeble-minded ward of the state, in various commonwealths, is:

Illinois	\$136.50
Indiana	147.49
Minnesota	148.05
Ohio	155.47
Wisconsin	159.77
Kansas	170.16
Michigan	179.42
Kentucky	184.77
California	208.97
Maine	222.99

At such prices, each state maintains hundreds, sometimes thousands, of feeble-minded, and the number is growing each year. In the near future the expenditures must grow much more rapidly, for public sentiment is beginning to demand that the defectives and delinquents of the community be properly cared for. The financial burden is becoming a heavy one; it will become a crushing one unless steps are taken to make the feeble-minded less productive.

We are forced, then, to recognize that from every standpoint, we are ethically justified in contending for the improvement of human society by working for the lessened production of those children who will grow up to become undesirable citizens — eugenically. The authors of *Applied Eugenics* reach this conclusion:

Granted that such prevention is a proper function of society, the question again arises whether it is an ethically correct procedure

¹ These figures were compiled by the National Committee for Mental Hygiene.

to allow these potentially undesirable parents to marry at all. Should they be doomed to perpetual celibacy, or should they be permitted to mate, on condition that the union be childless. The eugenic interests of society, of course, are equally safeguarded by either alternative. All the other interests of society appear to us to be better safeguarded by marriage than by celibacy. Adding the interests of the individual, which will doubtless be for marriage, it seems to us that there is good reason for holding such a childless marriage ethically correct, in the relatively small number of cases where it might seem desirable.

EUGENIC EXAMINATIONS

In recent years we have heard considerable about eugenic examinations and eugenic marriages. As far as the author is acquainted with these well-meant efforts, they would be more properly characterized as "hygienic" than eugenic. The sex hygienists, we believe, are more responsible for these efforts whether educational or legislative. Of course, every student of eugenics wishes them well, and cannot help but be interested in all these efforts to improve society, but it is unfortunate that so many of these reformatory and health efforts have become confused with the more fundamental program of eugenics. Let us encourage all this sort of thing — but let us not mistake the purpose.

Most of the laws dealing with medical examinations as a prerequisite to marriage are, on the whole, of that sort of legislation which may be loosely termed "half-baked" — that is, it is not fundamentally correct, and usually the provisions made for its enforcement are wholly inadequate. These laws, if they could be properly and indiscriminately enforced, would be good for society as a means of preventing the spread of venereal and other contagious diseases, but as they are at present enforced they are altogether too easy of evasion. It should be further borne in mind that even though these so-called hygienic statutes had a eugenic value, the refusal to issue a marriage license is not able

to prevent these people from having offspring, it merely denies the stamp of legitimacy to the child.

Let us welcome these so-called eugenic laws, but let the reader bear thoroughly in mind that they are not essential eugenic measures. They certainly are of educational value in that they awaken the public to a consideration of the importance of giving some thought to the individual's condition and status before he is permitted to enter into the marriage relation, and so when viewed in this light, even eugenists may welcome all such well-meant efforts. As with all other endeavors to surround the marriage relation with publicity it would tend to dignify matrimony and to deter those who would hastily and thoughtlessly rush into it. All laws, such as requisition for parental consent, presentation of birth certificates, and even a revival of the banns, would be acceptable toward improving marriage laws. We believe much can be done to improve our marriage laws, even aside from the more fundamental eugenic considerations which we have been discussing.

The fundamental defect in the so-called eugenic examination is that it is not sufficiently thorough, either in regard to its efforts to detect the presence of venereal infection — syphilis and gonorrhea — or in its efforts to disclose the presence of tuberculosis and other contagious diseases. Neither are these examinations sufficiently thorough from the standpoint of detecting feeble-mindedness, moronism, or arrested mental development, which would be transmissible to the next generation, not to mention the thoroughness of the inquiries which should be directed toward the detection in the family strain of alcoholism, insanity, epilepsy, etc. These examinations should be just as thoroughly conducted with reference to women as they are in the case of men. The author's attitude toward all of this sort of agitation and legislation is — let the good work go on. As a rule the funda-

mental principles are good, although the background of the legislation is immature, the examinations inadequate and the laws insufficiently enforced; but on the whole the agitation is good, the education is beneficial, even though the legislation is defective. From time to time these laws will be revised, will be better enforced, the public sentiment will become more intelligent, and they may be the forerunners of more sound and sane eugenic legislation which we hope will be adopted at some future time.

SUMMARY OF THE CHAPTER

1. It is desirable that those individuals whose offspring is doomed by heredity should be deprived of the opportunity or power to reproduce.

2. The sanctity of "personal rights" is not a sufficient reason for polluting and contaminating the race as a whole.

3. In case of uncertainty, give the defective individual the benefit of the doubt. Many defectives will voluntarily decline to reproduce, if they are properly instructed.

4. The ancients quite ignored and neglected the idiot. The Christian religion has inculcated the principle of charity and kindness regarding the treatment of these and similar unfortunates.

5. At first revered as "infants of the good God" the feeble-minded (in earlier times) were later persecuted as evil spirits, "filled with Satan."

6. The first school for the feeble-minded was founded in France in 1837.

7. The restriction program of eugenics embraces: education, restrictive legislation, segregation, and surgery—in certain cases.

8. The operation of sterilization is greatly and widely misunderstood. It does not unsex the individual, whatever the other objections may be.

9. The old doctrines of "personal liberty" must not be allowed to stand in the way of our utilizing the laws of heredity for the improvement of the race.

10. Eugenists are practical and sensible. They do not propose to "reduce humanity to the level of the barnyard."

11. Eugenists propose no more restriction than those already generally applied to criminals and the insane.

12. One of the first things needed for race betterment is an improvement of our marriage laws. Restrictive marriages are desirable.

13. We must abandon the belief that good environment will atone for the deficiencies of birth, and, therefore bless the offspring of any sort of marriage.

14. Feeble-mindedness and other sorts of defectiveness should constitute valid grounds for divorce.

15. As a rule, too early marriages should be discouraged. They favor an undue increase in the less desirable elements of society.

16. Why should the normal classes of society continue — forever — to support an increasing group of hopeless reproducing defectives?

17. That these defectives hand on their traits to the next generation is abundantly shown by a study of the "Jukes" or the "Kallikaks."

18. The immigrant of the future should be more carefully scrutinized from the standpoint of his hereditary tendencies and weaknesses.

19. A dozen states already have sterilization laws of some sort. Other states have laws looking toward improving marriages. The dawn of restrictive eugenics has come.

20. Cousin marriages depend entirely on whether the "stock" is sound or not. If the heredity is good — there is little or no scientific objection.

21. The right to marry is not inalienable. When the offspring is sure to curse society, the rights of future generations should be respected.

22. False sympathy and "humanitarian" consideration should not deceive us into approving marriage between manifestly defective individuals.

23. Some day the cost of caring for defectives will compel action. Every defective costs the state from \$150.00 to \$250.00 a year for care alone.

24. So-called eugenic examinations are in reality only

"hygienic," having to do with present health — and not the problem of inheritance.

25. Most "eugenic examinations" are inadequate, and the legislation along this line is mostly premature and "half-baked."

26. So-called eugenic legislation having to do with pre-marriage medical examinations may possibly be the forerunner of more thoroughgoing laws looking towards scientific race betterment.

CHAPTER XXV

LOOKING FACTS IN THE FACE

WE HAVE completed our examination of the data respecting both the physical and mental status of present-day civilization in general and the American people in particular. We have endeavored, in an unbiased manner, to examine the evidence and interpret the facts concerning the whole great problem of race degeneracy. It has been our intent to reach conclusions which were fair and to formulate opinions which were unprejudiced, and while we began this research optimistic and hopeful as regards the future of the American people, we cannot look all the assembled facts in the face and not experience a feeling of concern regarding the future status and development of the race.

While the author discerns no occasion for panic or hysteria; while the immediate welfare and continuity of the race is not actually and seriously threatened; while both natural and artificial influences already may be working in a small way toward correcting some of the evils recognized; nevertheless, the whole picture of the physical, intellectual, and racial status of the American people presents a group of problems of sufficient seriousness and gravity to challenge sober thought and command the earnest attention of every serious-thinking American.

Blind optimism and ignorant patriotism will avail us nothing in meeting the issues of physical decadence or in stemming the tide of mental degeneracy. A blind and unreasoning belief in a magnificent destiny for the American people will not serve to correct or remedy the ills which are appear-

ing in our body politic as the result of the insidious racial changes which are slowly, but surely, taking place.

As compared with many other nations, we are reasonably sound and our future, barring the passing unrest of the hour, would seem to be bright and hopeful; but such satisfaction and assurance is only comparative, for, when we look into the actual drift of things American, when we fearlessly face the known facts in the case, we are compelled to recognize that all is not well; that Uncle Sam does not, to a sufficient degree, possess the ideal of a "sound mind and a sound body." The scientific study of our physical, mental, and racial status discloses sufficient departure from the ideals of what we should be and may be, to arouse in every sincere student the conviction that positive effort must be put forth, in the very near future, to correct the existing evils which afflict us as a nation.

HIGHEST PATRIOTISM

The truest patriotism — the highest citizenship — is evidenced not by blind devotion to the thought of our national greatness and destiny, but rather by an honest willingness to learn the truth, sincerely to examine the facts, and then fearlessly and bravely face the issue, grapple with the difficulties, and by perseverance and common sense seek scientifically and thoroughly to overcome any handicap which the errors of the past and the mistakes of former generations may have placed upon the people of the present day, all the while keenly recognizing our great duty so to conduct our social, political, and other affairs as to prevent the further handicapping of succeeding generations as the result of the passing on to them added or cumulative burdens of the same, or a worse, nature than those we labor and suffer under at the present time.

Philanthropy and altruism need a new birth and an en-

larged viewpoint. While we would not stop any of our present-day efforts to relieve suffering, commiserate misery, or ameliorate human woe, we would so widen the horizon of the modern philanthropist that he would recognize that much of our charitable ministration is of but passing value, and that it contributes little or nothing to elevating the race—that it avails not a thing toward the uplifting of the next generation. The time has come for the powerful forces of science, the humanitarian ministrations of the physician, and the uplifting efforts of the reformer to coordinate and correlate their influence—to recognize that we have long since largely lost the protection of the operation of the laws of “natural selection” and that we are threatened with the dire consequences of our failure to establish some sort of “artificial selection,” based on our scientific knowledge, in some measure to take the place of the biologic law of the “survival of the fittest,” which modern civilization is so effectually annulling.

One thing is certain, if we do not give willing thought to these problems of race decadence, now or in the near future, some day this generation, or the next, will be forced to attend to some of these matters with haste and with but immature consideration; whereas now the threat of evil is far enough away to permit us to give careful, deliberate, and scientific consideration to the problems which confront us, and work out painstaking and sane methods of regulation, suppression, prevention, and control. Do we believe that prevention is better than cure? Do we not believe in preparedness in anything as regards our state and nation? Will the American people always go on heedlessly until they stand on the brink of a precipice, before they will consent to discern danger and prepare for eventualities? Can we not open our eyes and see whither we are drifting, and before the current becomes so swift as to bear us dangerously near the evil shoals, can we

not reverse the engine of civilization, or at least stop in our national activities a sufficient length of time to take stock, to ascertain the truth, to assemble the facts, and then having looked them squarely in the face, to take hold of our health, eugenic, and racial problems, with an earnest will to bring about the scientific and systematic solution of the difficulties which they present? .

THE SOLEMN CALL TO THINK

American conditions call for study — for thought. The facts heretofore presented demand recognition. The problems of the hour challenge our sincere study. Our national life needs to be studied in the light of the rise and downfall of other nations. We are, as governments go, but a young people, and now is the time, in our adolescence as it were, carefully to take stock, earnestly to inquire into and recognize our fundamental defects, and then with that patriotic courage and stalwart bravery born of the optimism and national confidence which has for its foundation that body of accumulated scientific facts and biologic wisdom which is the heritage of the dawn of the twentieth century, let us as one man consecrate our hands to the task and dedicate our minds to the cause of turning away the menacing tide of physical decadence and mental defectiveness, before this dire threat of degeneracy shall have time to assume more serious proportions, and before the racial deterioration which now looms in the distance shall have further undermined the stability and intellectual greatness of America and Americans.

The call now to the citizenry of America is for the reading, thinking half to become students of the great problem of race betterment: to formulate their ideas, revise their opinions, reach their conclusions, and then in turn become teachers of the other, the unthinking, heedless, and careless

half, that is driving on heedlessly toward racial decadence and national ruin. This is the age, today is the time, for education and agitation. Tomorrow, perhaps even another generation, may be the time for the more drastic legislation which shall seek to purify our stream of national life. We must possess more knowledge, and more people must possess the knowledge which we today have, before we can begin the more sure and positive purging of the nation by corrective legislation. But today we already know enough of heredity, we already are aroused—at least a thinking minority is sufficiently aroused—concerning the menace of decadence and the threat of degeneracy, as to make certain that the time has come, the hour has struck, to sound the rallying call, to blow the bugle for the summons into action of the men and women who have dared to uncover the causes which are operating to threaten our national integrity; and who are willing to face the facts which so unerringly point out our slow but sure drift toward national degeneracy. Yes, the hour is here to sound the rallying call for that part of our citizenry which is willing to “look the facts in the face” and then with intelligence and determination lay the ax of prevention to the root of the tree which is responsible for this increasing harvest of human unfitness, defectiveness, and degeneracy.

The reader may be interested in knowing that this book on “Race Decadence” is the first of a series of four volumes which will cover, in their discussions, the whole field of Race Hygiene in general and the racial status and prospects of the American people in particular. This series of books will cover the fields of race degeneracy, heredity, eugenics, and the more direct application of these biologic facts to the present problems of the American people, including a study of immigration in relation to eugenics.

Briefly outlined, these volumes will cover these subjects in a manner somewhat after the following scheme:

Vol. I. Race Decadence.—This phase of Race Hygiene is covered in the present volume.

Vol. II. Genetics: The Science of Heredity.—The subject of genetics will be covered in the second volume of this series, which fully discusses the laws of inheritance as applied to plants, animals, and the human species, presenting a practical, popular, and scientific portrayal of this extremely interesting subject.

Vol. III. Race Betterment; or, Applied Eugenics.—This volume will be devoted to making a practical application of the laws of heredity to the human race. It will present a full and frank discussion of eugenics, with a sane and practical program for Race Betterment. It will present the medical man's view of the problem of Race Hygiene.

Vol. IV. American Problems.—Lastly, the fourth volume will take up the sociological, educational, industrial, and political aspects of Race Hygiene in relation to the American people. This volume will give careful consideration to the problems of immigration, philanthropy, and other sociological and reformatory questions in their relation to applied eugenics.

APPENDICES

APPENDIX A

TABLE NO. I

**DEATH-RATE IN THE UNITED STATES, PER 1,000 OF POPULATION
FROM 1907 TO 1917**

Calendar Year	Deaths from all causes* Registration area †	
	Number	Rate per 1,000 population
1917.....	1,068,932	14.2
1916.....	1,001,921	14.0
1915.....	909,155	13.5
1914.....	898,059	13.6
1913.....	890,848	14.1
1912.....	838,251	13.9
1911.....	839,284	14.2
1910.....	805,412	15.0
1909.....	732,538	14.4
1908.....	691,574	14.8
1907.....	687,034	16.0

*Exclusive of stillbirths.

†Exclusive of Hawaii.

TABLE NO. 2

CAUSES OF DEATH IN THE REGISTRATION AREA (1917)

Cause	Number	Rate per 100,000 popu- lation	Per cent of total
All causes.....	1,068,932	1419.4	100.0
Organic diseases of the heart...	115,337	153.2	10.8
Pneumonia (all forms).....	112,821	149.8	10.5
Tuberculosis (all forms).....	110,285	146.4	10.3
Of the lungs.....	97,047	128.9	9.1
Meningitis.....	6,092	8.1	0.6
Other forms.....	7,146	9.5	0.6
External causes.....	81,903	108.7	7.6
Accidental falls.....	11,114	14.8	1.0
Suicide.....	10,056	13.4	0.9
Railroad accidents and in- juries.....	8,649	11.5	0.8
Burns (excluding those due to conflagrations).....	6,830	9.1	0.6
Automobile accidents and in- juries.....	6,724	8.9	0.6
Homicide.....	5,781	7.7	0.5
Accidental drowning.....	5,550	7.4	0.5

CAUSES OF DEATH IN THE REGISTRATION AREA (1917)—Continued

Cause	Number	Rate per 100,000 popu- lation	Per cent of total
External causes—continued.			
Accidental absorption of dele- terious gases except in con- flagrations.....	3,375	4.5	0.3
Mine accidents and injuries..	2,623	3.5	0.2
Injuries by vehicles other than railroad cars, street cars, and automobiles.....	2,326	3.1	0.2
Street car accidents and in- juries.....	2,227	3.0	0.2
Machinery accidents and in- juries.....	2,112	2.8	0.2
Effects of heat (other than burns).....	1,964	2.6	0.2
Other external causes.....	12,572	16.7	1.2
Acute nephritis and Bright's disease.....	80,912	107.4	7.6
Cerebral hemorrhage (apoplexy)	62,431	82.9	5.9
Cancer.....	61,452	81.6	5.8
Diarrhea and enteritis.....	59,504	79.0	5.6
Congenital debility and mal- formations.....	56,973	75.7	5.3
Arterial diseases — atheroma, aneurism, etc.....	19,055	25.3	1.8
Influenza.....	12,974	17.2	1.2
Diabetes.....	12,750	16.9	1.2
Diphtheria.....	12,453	16.5	1.1
Bronchitis.....	12,311	16.3	1.1
Measles.....	10,745	14.3	1.0
Typhoid fever.....	10,113	13.4	0.9
Appendicitis and typhilitis.	9,429	12.5	0.9
Respiratory diseases other than pneumonia and bronchitis...	9,238	12.3	0.9
Hernia and intestinal obstruc- tions.....	8,677	11.5	0.8
Cirrhosis of the liver.....	8,569	11.4	0.8
Whooping cough.....	7,837	10.4	0.7
Puerperal affections other than puerperal septicemia.....	7,317	9.7	0.7
Meningitis.....	6,890	9.1	0.6
Rheumatism.....	4,456	5.9	0.4
Scarlet fever.....	3,141	4.2	0.3
Erysipelas.....	2,866	3.8	0.3
Malaria.....	2,387	3.2	0.2
All other defined causes.....	152,496	202.5	14.3
Unknown or ill-defined causes..	13,610	18.1	1.3

While the registration area of the United States embraces only about three-fourths of the country, the statistics which it yields are taken as the basis for estimating the death-rates and compiling the vital statistics for the whole country.

TABLE NO. 3
LIFE EXPECTANCY TABLES

Age interval	Of 100,000 persons born alive		Rate of mortality per 1,000	Complete expectation of life
Period of life-time between two exact ages	Number alive at beginning of age interval	Number dying in age interval	Number dying in age interval among 1,000 alive at beginning of age interval	Average length of life remaining to each one alive at beginning of age interval
Years			Annual rate	In years
0-1	100,000	11,462	114.62	51.49
1-2	88,538	2,446	27.62	57.11
2-3	86,092	1,062	12.34	57.72
3-4	85,030	666	7.83	57.44
4-5	84,364	477	5.65	56.89
5-6	83,887	390	4.66	56.21
6-7	83,497	327	3.91	55.47
7-8	83,170	274	3.30	54.69
8-9	82,896	234	2.82	53.87
9-10	82,662	204	2.47	53.02
10-11	82,458	187	2.27	52.15
11-12	82,271	180	2.19	51.26
12-13	82,091	182	2.22	50.37
13-14	81,909	193	2.36	49.49
14-15	81,716	210	2.57	48.60
15-16	81,506	232	2.84	47.73
16-17	81,274	256	3.16	46.86
17-18	81,018	285	3.52	46.01
18-19	80,733	315	3.89	45.17
19-20	80,418	344	4.28	44.34
20-21	80,074	375	4.68	43.53
21-22	79,699	398	5.00	42.73
22-23	79,301	412	5.19	41.94
23-24	78,889	418	5.29	41.16
24-25	78,471	425	5.42	40.38
25-26	78,046	432	5.54	39.60
26-27	77,614	440	5.67	38.81
27-28	77,174	451	5.85	38.03
28-29	76,723	465	6.06	37.25
29-30	76,258	479	6.28	36.48
30-31	75,779	493	6.51	35.70
31-32	75,286	511	6.78	34.93
32-33	74,775	530	7.09	34.17
33-34	74,245	550	7.40	33.41
34-35	73,695	568	7.72	32.66
35-36	73,127	588	8.04	31.90
36-37	72,539	605	8.33	31.16
37-38	71,934	617	8.59	30.42
38-39	71,317	631	8.84	29.68
39-40	70,686	644	9.11	28.94

LIFE EXPECTANCY TABLES—Continued

Age interval	Of 100,000 persons born alive		Rate of mortality per 1,000	Complete expectation of life
Period of life-time between two exact ages	Number alive at beginning of age interval	Number dying in age interval	Number dying in age interval among 1,000 alive at beginning of age interval	Average length of life remaining to each one alive at beginning of age interval
Years			Annual rate	In years
40-41	70,042	658	9.39	28.20
41-42	69,384	674	9.72	27.46
42-43	68,710	693	10.09	26.73
43-44	68,017	716	10.52	25.99
44-45	67,301	740	10.99	25.26
45-46	66,561	766	11.52	24.54
46-47	65,795	795	12.08	23.82
47-48	65,000	821	12.63	23.10
48-49	64,179	846	13.18	22.39
49-50	63,333	873	13.77	21.69
50-51	62,460	897	14.37	20.98
51-52	61,563	929	15.08	20.28
52-53	60,634	970	16.01	19.58
53-54	59,664	1,025	17.17	18.89
54-55	58,639	1,084	18.49	18.21
55-56	57,555	1,153	20.03	17.55
56-57	56,402	1,225	21.72	16.90
57-58	55,177	1,289	23.37	16.26
58-59	53,888	1,346	24.97	15.64
59-60	52,542	1,404	26.73	15.03
60-61	51,138	1,462	28.58	14.42
61-62	49,676	1,521	30.62	13.83
62-63	48,155	1,587	32.96	13.26
63-64	46,568	1,656	35.55	12.69
64-65	44,912	1,718	38.25	12.14
65-66	43,194	1,773	41.06	11.60
66-67	41,421	1,826	44.08	11.08
67-68	39,595	1,877	47.41	10.57
68-69	37,718	1,928	51.12	10.07
69-70	35,790	1,974	55.14	9.58
70-71	33,816	2,013	59.52	9.11
71-72	31,803	2,044	64.29	8.66
72-73	29,759	2,065	69.38	8.22
73-74	27,694	2,072	74.82	7.79
74-75	25,622	2,070	80.78	7.38
75-76	23,552	2,057	87.37	6.99
76-77	21,495	2,028	94.35	6.61
77-78	19,467	1,981	101.74	6.25
78-79	17,486	1,920	109.78	5.90
79-80	15,566	1,854	119.10	5.56
80-81	13,712	1,786	130.28	5.25
81-82	11,926	1,696	142.17	4.96
82-83	10,230	1,565	153.06	4.70
83-84	8,665	1,409	162.58	4.45
84-85	7,256	1,255	172.97	4.22

LIFE EXPECTANCY TABLES—Continued

Age interval	Of 100,000 persons born alive		Rate of mortality per 1,000	Complete exp. c-tation of life
Period of life-time between two exact ages	Number alive at beginning of age interval	Number dying in age interval	Number dying in age interval among 1,000 alive at beginning of age interval	Average length of life remaining to each one alive at beginning of age interval
Years			Annual rate	In years
85-86	6,001	1,103	183.80	4.00
86-87	4,898	954	194.85	3.79
87-88	3,944	816	206.84	3.58
88-89	3,128	689	220.13	3.39
89-90	2,439	571	234.31	3.20
90-91	1,868	466	249.62	3.03
91-92	1,402	371	264.66	2.87
92-93	1,031	289	279.90	2.73
93-94	742	219	295.12	2.59
94-95	523	162	310.17	2.47
95-96	361	117	325.02	2.35
96-97	244	83	339.74	2.24
97-98	161	57	354.55	2.14
98-99	104	39	369.73	2.04
99-100	65	25	385.46	1.95
100-101	40	16	401.91	1.85
101-102	24	10	419.14	1.76
102-103	14	6	437.37	1.67
103-104	8	4	456.77	1.59
104-105	4	2	477.48	1.50
105-106	2	1	500.22	1.41
106-107	1	1	524.82	1.33

There are numerous methods of figuring, or estimating, the average length of human life—all of which are more or less faulty. After giving due consideration to the objections which may be urged against the several ways of calculating the duration of life, this plan of the Life Expectancy Table seems to be the most practical and reliable.

In this connection it may be well to remind the reader that the "health span" of life, for the average American, is only ten years. No matter how long we may *live*—on the average—we can only expect to enjoy ten years of perfect health.

TABLE NO. 4
DEATH-RATES AT DIFFERENT AGES IN THE REGISTRATION AREA

Age of decedent	Deaths from all causes *			Registration area† 1917		
	Number			Distribution per 1,000		
	Total	Male	Female	Total	Male	Female
All ages.....	1,068,932	587,309	481,623	1,000.0	1,000.0	1,000.0
Under 1 year.....	171,024	96,951	74,073	160.0	165.1	153.8
1 year.....	37,638	20,127	17,511	35.2	34.3	36.4
2 years.....	16,893	8,903	7,990	15.8	15.2	16.6
3 ".....	10,520	5,563	4,957	9.8	9.5	10.3
4 ".....	7,633	3,997	3,636	7.1	6.8	7.5
Under 5 years.....	243,708	135,541	108,167	228.0	230.8	224.6
5 to 9 years.....	23,070	12,408	10,662	21.6	21.1	22.1
10 " 14 ".....	16,088	8,443	7,645	15.1	14.4	15.9
15 " 19 ".....	26,049	13,324	12,725	24.4	22.7	26.4
20 " 24 ".....	39,101	20,590	18,511	36.6	35.1	38.4
25 " 29 ".....	41,732	22,765	18,967	39.0	38.8	39.4
30 " 34 ".....	43,121	24,442	18,679	40.3	41.6	38.8
35 " 39 ".....	47,572	27,469	20,103	44.5	46.8	41.7
40 " 44 ".....	48,665	28,750	19,915	45.5	49.0	41.3
45 " 49 ".....	52,485	31,352	21,133	49.1	53.4	43.9
50 " 54 ".....	57,318	34,002	23,316	53.6	57.9	48.4
55 " 59 ".....	62,428	36,353	26,075	58.4	61.9	54.1
60 " 64 ".....	67,500	38,401	29,099	63.1	65.4	60.4
65 " 69 ".....	72,225	39,751	32,474	67.6	67.7	67.4
70 " 74 ".....	74,303	39,436	34,867	69.5	67.1	72.4
75 " 79 ".....	65,891	33,336	32,555	61.6	56.8	67.6
80 " 84 ".....	48,469	23,256	25,213	45.3	39.6	52.4
85 " 89 ".....	25,280	11,433	13,847	23.6	19.5	28.8
90 " 94 ".....	8,985	3,748	5,237	8.4	6.4	10.9
95 " 99 ".....	2,152	826	1,326	2.0	1.4	2.8
100 years and over...	754	285	469	0.7	0.5	1.0
Unknown.....	2,036	1,398	638	1.9	2.4	1.3

* Exclusive of stillbirths.

† Exclusive of Hawaii.

CENSUS STATISTICS FROM 1850 TO 1910

The following table shows the number of insane persons enumerated at each census from 1850 to 1910, those in institutions for the insane and those outside such institutions being shown separately for the censuses of 1880 and 1890. Prior to 1880 no separate return was made of the insane in institutions; and since 1890, no enumeration has been made of the insane outside of institutions.

TABLE NO. 5
INSANE ENUMERATED AT EACH CENSUS FROM 1850 TO 1910

Year	Insane enumerated in institutions for the insane		Insane enumerated outside such institutions		Total insane enumerated	
	Number	Per 100,000 population	Number	Per 100,000 population	Number	Per 100,000 population
1910.....	187,791	204.2	*	*	187,791	204.2
1904.....	150,151	183.6	*	*	150,151	183.6
1890.....	74,028	118.2	32,457	51.8	106,485	170.0
1880.....	40,942	81.6	51,047	101.7	91,959	183.3
1870.....	†	.....	†	.....	† 37,432	† 97.1
1860.....	†	.....	†	.....	† 24,042	† 76.5
1850.....	†	.....	†	.....	† 15,610	† 67.3

* No enumeration of insane outside of institutions.

† Included in the enumeration, but not returned separately.

‡ Enumeration believed to have been seriously deficient.

TABLE NO. 6
INSANE OF VARIOUS AGES IN THE UNITED STATES, 1910

Age group	Total population 1910	Insane in hospitals, 1910			
		Enumerated on January 1		Admitted during the year	
		Number	Per 100,000 population	Number	Per 100,000 population
All ages	91,972,266	187,791	204.2	60,769	66.1
Under 15 years.....	29,499,136	341	1.2	327	1.1
15 to 19 years.....	9,063,603	2,312	25.5	2,539	28.0
20 " 24 ".....	9,056,984	7,801	86.1	5,701	62.9
25 " 29 ".....	8,180,003	14,083	172.2	7,027	85.9
30 " 34 ".....	6,972,185	19,091	273.8	7,295	104.6
35 " 39 ".....	6,396,100	22,856	357.3	7,495	117.2
40 " 44 ".....	5,261,587	23,321	443.2	6,469	122.9
45 " 49 ".....	4,469,197	22,874	511.8	5,681	127.1
50 " 54 ".....	3,900,791	20,885	535.4	4,877	125.0
55 " 59 ".....	2,786,951	16,383	587.8	3,368	120.8
60 " 64 ".....	2,267,150	12,729	561.5	2,872	126.7
65 " 69 ".....	1,679,503	9,545	568.3	2,191	130.5
70 " 74 ".....	1,113,728	6,263	562.3	1,776	159.5
75 " 79 ".....	667,302	3,596	539.9	1,180	176.8
80 years and over.....	488,991	2,477	506.6	1,014	207.4
Age unknown.....	169,055	3,234	.....	957	.....

The classification by five-year age groups shows that the number of inmates enumerated in hospitals for the insane on January 1, 1910, was larger in each successive older group up to the age of 45. After that the number falls off slowly at

first and then more rapidly. The ratio of inmates to total population, however, shows an uninterrupted increase up to the age of 60, reaching its maximum in the age period 55 to 59, in which period the number of inmates per 100,000 population is 587.8. This means that at that period of life about 1 person in 170 is an inmate of a hospital for the insane. The ratio declines somewhat but not very greatly in the older age periods. In the population 80 years of age and over it is 506.6 to 100,000, or 1 to 197. As each generation grows older the ranks of the insane which it includes are of course being continually recruited by new cases of insanity; on the other hand, they are being depleted by deaths, and, so far as concerns the insane in hospitals, by discharges also. The death-rate, being much higher, for the insane than for the total population, is a factor which tends to reduce the ratio of hospital inmates to total population in the older-age periods; but as indicated by the statistics, its influence up to a certain point in the age scale is more than offset by the increasing ratio of admissions representing new cases of insanity.

It will probably require at least another generation before we will have our insane and defective population sufficiently institutionalized to render our statistics accurate and reliable. The rapid statistical increase in insanity in recent decades is, no doubt, more or less due to the increasing tendency to place this sort of individual in the custody of our state hospitals and asylums. At some future time this custom will have reached the maximum practice and from that time on the increase in our insanity figures will more nearly represent an actual gain than they do at the present time. Accordingly, we should expect—in the near future—to see a declining tendency in the statistics having to do with the number of insane admitted each year into our state institutions.

INSANITY IN DIFFERENT SECTIONS OF THE UNITED STATES

The following table indicates the variations in the relative importance of some of these factors in different sections of the United States. It shows, for instance, that in New England 83.3 per cent of the total population in 1910 was urban, 27.9 per cent foreign born, 5.5 per cent born in other parts of the United States, 27.2 per cent under 15 years of age, and 5.9 per cent 65 years and over, and that the number of males to 100 females in the total population was 99.3. Without attempting at this point to trace out or establish any causal relationship between the ratios and percentages presented in this table, attention may be called to the fact a high ratio of insane in institutions appears to be associated with a relatively high percentage of urban population and of foreign born, and with a relatively small percentage of children and a relatively high percentage of old people. It may be further noted that the sex ratios, given in the last column of the table, appear to be independent of the variation in the ratios of the insane.

TABLE NO. 7

INSANITY IN DIFFERENT SECTIONS OF THE UNITED STATES

Division	Insane in hospitals per 100,000 population		Per cent of total population 1910					Males to 100 females in the total population
	Enumerated on January 1, 1910	Admitted in 1910	Urban	Foreign born	Born in other divisions	Under 15 years of age	65 years of age and over	
United States.....	204.2	66.1	46.3	14.7	.....	32.1	4.3	106.0
New England.....	298.8	106.6	83.3	27.9	5.5	27.2	5.9	99.3
Middle Atlantic.....	271.2	75.9	71.0	25.1	4.9	29.0	4.4	103.3
East North Central...	226.0	72.3	52.7	16.8	9.3	29.6	5.1	106.0
West North Central...	194.9	64.1	33.3	13.9	20.2	31.9	4.6	109.9
South Atlantic.....	163.6	55.1	25.4	2.5	4.7	37.5	3.6	101.2
East South Central...	116.0	43.8	18.7	1.0	7.3	38.1	3.5	101.9
West South Central...	95.8	33.8	22.3	4.0	23.3	38.8	2.8	107.2
Mountain.....	135.7	61.6	36.0	17.2	40.2	31.1	3.0	127.9
Pacific.....	243.4	82.6	56.8	22.8	40.3	24.3	4.5	129.5

THE PHYSICALLY DEFECTIVE AMONG FEEBLE-MINDED

The following table gives the percentage of physically defective in the several geographic divisions. It may be noted that the percentages in the New England and the Middle Atlantic divisions are considerably lower than in most of the other divisions, and probably reflect differences in the extent to which provision has been made for the care of defectives in special institutions. Such statistics are also more or less influenced by migratory and other local tendencies. The effectives emigrate — the defectives stay at home.

TABLE NO. 8
FEEBLE-MINDED IN INSTITUTIONS—PERCENTAGE REPORTED
AS PHYSICALLY DEFECTIVE

Division	Total	Blind	Deaf	Crippled, maimed, or de- formed	Para- lytic	Epi- leptic	Two or more defects
Enumerated on January 1							
United States.....	25.3	0.6	1.4	4.7	2.9	11.08	3.9
New England.....	17.3	0.8	1.8	2.5	4.6	5.5	2.1
Middle Atlantic.....	16.7	0.3	0.8	4.3	1.9	7.7	1.6
East North Central...	29.6	0.6	1.3	6.5	3.4	12.8	4.9
West North Central...	33.2	0.7	1.7	4.6	3.6	17.7	4.9
South Atlantic.....	39.2	0.9	0.7	4.3	2.4	21.9	9.1
East South Central...	20.6	0.9	.....	2.1	3.6	13.3	0.6
West South Central...	47.4	10.5	.....	15.8	.....	15.8	5.3
Mountain.....	16.9	.....	0.6	1.3	.....	14.4	0.6
Pacific.....	37.7	0.7	5.3	2.3	1.7	15.9	11.8
Admitted during the year							
United States.....	23.8	0.6	1.8	4.0	3.5	10.3	3.7
New England.....	16.3	0.5	1.3	2.5	3.8	6.4	1.9
Middle Atlantic.....	15.4	0.7	2.2	3.9	2.0	4.9	1.6
East North Central...	25.0	0.4	1.2	3.7	3.6	12.1	3.9
West North Central...	38.9	0.8	1.3	4.8	5.6	18.4	8.0
South Atlantic.....	27.0	.....	.....	3.4	3.4	15.7	5.4
East South Central...	30.4	2.2	3.0	8.9	10.4	5.2	0.7
West South Central...	9.1	.....	.....	.....	.....	.....	9.1
Mountain.....	39.4	.....	4.2	18.3	1.4	11.3	4.2
Pacific.....	33.5	.....	4.1	.....	.....	21.1	8.2

While the statistics having to do with insanity appear to indicate that mental disorders are more prevalent among the foreign-born than among the native population, in all fairness to the immigrant, attention should be called to the fact that the foreign-born population contains fewer children, and therefore must represent a larger number of individuals who have reached those ages at which insanity more commonly appears. Again, many borderline cases of defectiveness have their latent tendencies developed by the stress and strain of a new and strange environment.

TABLE NO. 9
COMPARISON BETWEEN NATIVE AND FOREIGN INSANE

Age group	Native White, 1910			Foreign-born White, 1910		
	Total number	Admitted to hospitals for the insane		Total number	Admitted to hospitals for the insane	
		Number	Per 100,000		Number	Per 100,000
All ages.....	68,386,412	39,629	57.9	13,345,545	15,523	116.3
Under 15 years.....	24,957,149	256	1.0	759,346	10	1.3
15 to 19 years.....	7,294,630	1,871	25.6	673,761	320	47.5
20 " 24 "	6,556,030	3,966	60.5	1,430,381	1,074	75.1
25 " 29 "	5,594,440	4,749	84.9	1,662,696	1,568	94.3
30 " 34 "	4,761,561	4,841	101.7	1,505,715	1,777	118.0
35 " 39 "	4,323,752	4,999	115.6	1,408,093	1,848	131.2
40 " 44 "	3,476,797	4,201	120.8	1,303,475	1,755	134.6
45 " 49 "	2,914,702	3,656	125.4	1,146,360	1,605	140.0
50 " 54 "	2,630,258	3,197	121.5	925,055	1,341	145.0
55 " 59 "	1,870,686	2,178	116.4	693,520	982	141.6
60 " 64 "	1,441,710	1,728	119.9	627,583	928	147.9
65 " 69 "	1,061,557	1,282	120.8	488,397	765	156.6
70 " 74 "	693,917	1,009	145.4	336,967	610	181.0
75 " 79 "	412,780	694	168.1	208,212	407	195.5
80 years and over.....	288,400	570	197.6	149,773	370	264.7
Age unknown.....	108,013	432	....	26,211	163	....

Of course, insanity statistics respecting our foreign-born population are, in general, subject to the same interpretations that have been applied to the data on insanity as concerns our population as a whole.

DISTRIBUTION OF FEEBLE-MINDEDNESS

The following table gives, by geographic divisions, the number of feeble-minded enumerated in institutions for this class on January 1, 1910, and the number admitted during the year, with the ratio per 100,000 population. Similar statistics are presented also for the total combined number of feeble-minded in special institutions and in almshouses.

TABLE NO. 10
DISTRIBUTION OF FEEBLE-MINDEDNESS

Division	Feeble-minded in special institutions		Feeble-minded in special institutions and in almshouses	
	Enumerated on January 1, 1910	Admitted during the year 1910	Enumerated on January 1, 1910	Admitted during the year 1910
	Number			
United States.....	20,731	3,825	33,969	8,233
New England.....	2,012	640	3,569	1,000
Middle Atlantic.....	6,766	1,152	9,097	2,122
East North Central.....	5,941	909	9,808	1,972
West North Central.....	3,906	624	5,428	1,003
South Atlantic.....	584	89	2,452	786
East South Central.....	330	135	1,384	588
West South Central.....	19	11	384	159
Mountain.....	160	71	316	185
Pacific.....	1,013	194	1,531	418
	Number per 100,000 population			
United States.....	22.5	4.2	36.9	9.0
New England.....	30.7	9.8	54.5	15.3
Middle Atlantic.....	35.0	6.0	47.1	11.0
East North Central.....	32.6	5.0	53.7	10.8
West North Central.....	33.6	5.4	46.6	8.6
South Atlantic.....	4.8	0.7	20.1	6.4
East South Central.....	3.9	1.6	16.5	7.0
West South Central.....	0.2	0.1	4.4	1.8
Mountain.....	6.1	2.7	12.0	7.0
Pacific.....	24.2	4.6	36.5	10.0

It is evident that the number of feeble-minded in different sections of the country, as shown by statistics, is determined by the prevalent practice of placing these defectives in public institutions, and not by the actual number of these individuals in the population.

TABLE NO. II

PAUPERS ENUMERATED IN ALMSHOUSES ON JANUARY 1, 1910, CLASSIFIED BY RACE, NATIVITY, PARENTAGE, SEX, AND AGE AT ENUMERATION, FOR THE UNITED STATES AS A WHOLE

Sex and age at enumeration	Aggregate	White					Colored					
		Total	Total of (1)(2)(3)	(1) Native parent-age	(2) Foreign or mixed parentage	(3) Parent-age unknown	Foreign born	Nativity unknown	Total	Negro	Indian	Other colored
Both Sexes	84,198	77,734	44,254	32,435	10,077	1,719	33,125	355	6,464	6,281	71	109
All ages												
Under 5 years	1,146	1,049	1,024	689	242	97	10	11	137	133	2	2
5 to 9 years	641	559	560	422	82	36	9	10	82	80	1	1
10 " 14 "	513	470	475	362	61	25	16	9	73	69	4	4
15 " 19 "	608	777	691	526	121	44	81	5	131	127	2	2
20 " 24 "	1,006	1,352	1,018	787	203	58	296	8	254	245	3	6
25 " 29 "	1,058	1,734	1,315	965	235	65	467	12	324	313	4	7
30 " 34 "	1,396	2,089	1,616	1,165	376	73	475	13	307	266	5	6
35 " 39 "	1,437	2,973	2,251	1,566	385	90	703	18	364	355	5	6
40 " 44 "	2,303	3,799	2,758	1,871	782	105	1,723	13	404	399	3	2
45 " 49 "	5,188	4,822	3,231	2,166	955	110	1,766	25	366	350	13	13
50 " 54 "	7,113	6,676	4,492	2,862	1,356	164	2,760	24	437	420	4	13
55 " 59 "	8,311	7,888	4,853	3,265	1,438	150	3,918	17	41	413	3	8
60 " 64 "	10,809	9,531	4,850	3,121	1,274	135	4,668	23	568	551	7	10
65 " 69 "	13,357	9,971	4,159	3,183	866	140	5,591	17	560	552	2	6
70 " 74 "	9,113	3,858	3,858	3,093	644	131	5,290	22	563	550	5	8
75 " 79 "	7,765	7,765	3,778	2,767	499	102	3,968	22	452	443	5	4
80 years and over	7,295	7,295	3,619	2,120	357	142	3,517	29	828	805	12	11
Age unknown	655	485	299	228	21	50	101	85	190	182	4	4

TABLE NO. 12

FEMALE PAUPERS ENUMERATED IN ALMSHOUSES ON JANUARY 1, 1910, OR ADMITTED DURING 1910,
WHO ARE REPORTED TO HAVE BORNE CHILDREN, CLASSIFIED BY NUMBER OF CHILDREN
BORN, AND BY RACE, NATIVITY, AND AGE OF MOTHER, FOR THE UNITED
STATES AS A WHOLE

Female paupers enumerated in almshouses on January 1, 1910, or admitted during 1910, who are reported to have borne children.											
Number who have borne —											
Race, nativity and age of mother	Children										
	Total	1	2	3	4	5	6	7	8	9	10 or more
All ages.....	18,448	4,690	3,697	2,766	2,139	1,454	1,034	769	504	388	837
White.....	16,724	4,233	3,368	2,516	1,940	1,339	937	687	447	359	738
Native.....	9,685	2,785	2,122	1,425	1,015	702	478	338	232	171	333
Foreign born.....	6,938	1,413	1,228	1,079	919	629	456	347	209	186	400
Unknown na- tivity.....	101	35	18	12	6	8	3	2	6	2	5
Colored.....	1,724	457	329	250	199	115	97	82	57	29	99
											10
											170
											160
											84
											72

TABLE NO. 13
BABIES BORN IN ALMSHOUSES IN 1910, CLASSIFIED ACCORDING TO WHETHER FATHER WAS IN THE INSTITUTION OR NOT, AND AS LEGITIMATE OR ILLEGITIMATE, BY DIVISIONS

Babies born in almshouses, 1910									
All classes	United States	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Pacific
Total.....	1,107	298	258	139	46	183	52	25	84
Father in institution.....	28	3	4	4	1	2	8	1	4
Father not in institution.....	1,079	295	254	135	45	181	44	24	90
Legitimate.....	436	115	102	43	23	51	16	11	66
Illegitimate.....	619	177	148	84	19	118	34	10	17
Legitimacy unknown.....	52	6	8	12	4	14	2	4	1

APPENDIX B

ECONOMIC LOSSES FROM SICKNESS

THE annual economic loss due to preventable disease and death is conservatively estimated at \$3,000,000,000, and our annual fire loss at about \$250,000,000. Careful studies of sickness suggest that the average working family should reckon on spending about 4 per cent. of its wages or salary on account of sickness — directly or indirectly.

The United States spends about \$7,000,000 a year on bugs and weeds: how much on babies? The government spends approximately \$6,000,000 a year on animal diseases: how much on hygiene and eugenics?

If we appraise each life lost at only \$2,000 and each year's average earnings for adults at only \$1,000, the economic gain to be obtained from preventing disease, measured in dollars, amounts to over \$2,000,000,000.

RESPONSIBILITY FOR SICKNESS

Three things are primarily to blame for sickness — the individual, the community, and the industry. Each may be charged directly with the cause of certain diseases while all three combine in causing and accentuating other diseases.

The causes for which the individual is directly responsible are intemperance in the use of food, drugs, and alcohol, carelessness and recklessness in his daily work and conduct.

The community's responsibility is principally on account of contagious diseases and particularly filth diseases, such as typhoid, tuberculosis due to insanitary conditions and bad housing, failure to provide adequately for child protection and care, general sanitation, and health education.

The responsibility of industry is principally due to the following causes of disease: dust, bad illumination, devitalizing air, extremes of temperature, fatigue, infections, and poisons. These altogether constitute what are generally known as the "health hazards in industry," and from them many diseases directly result, among which are included the so-called "occupational diseases."

LOSS OF WORKING TIME AND WAGES

If 2 per cent of the 38,167,336 persons gainfully employed in the United States are constantly suffering from actually disabling illness and an additional 1.5 per cent are seriously ill, although still at work, we have a total of 1,335,856 employed persons ill at any given time.

An average of 9 days lost from work each year by each employee may not seem a particularly long period, until we realize that the 38,000,000 employed persons and the industries which employ them are losing each year at least 342,000,000 days because of illness, at least half of which is preventable.

From the standpoint of the employees, these days of sickness represent a money loss of many millions of dollars. The Pennsylvania Health Insurance Commission estimates that in that state alone employees are losing more than \$39,000,000 in wages annually because of sickness. A total loss of wages almost always occurs during absence from work because of illness. Only the skilled worker and salaried employee escapes this loss; in fact the average wage-earner may consider himself fortunate if his place is reserved until his return. In a study of 500 working women, the wage was found to have been continued in just three instances of sickness. In the Kensington survey, the wage loss was reported in 367 cases an average of \$78.53 per case, or more than a month's pay of a single worker, according to the family

income found in the survey. It is easy to see that the average employee, unless he has other wage-earners in the family, or relatives able to help him, may find the wage-loss from illness alone an intolerable burden, eating up his savings, piling up debts, and lowering his whole standard of living.

The statistics of the Workmen's Sick and Death Benefit Society of New York, compiled by the United States Department of Labor Statistics for the state health insurance commissions, shows, for 34,502 cases of disability, that 16.9 per cent of the members are disabled every year for more than 7 days, and 23.5 per cent for more than 1 day. The distribution of cases of sickness was as follows: 23.6 per cent of those sick were sick from 1 to 6 days; 64 per cent from 1 to 4 weeks; 19.7 per cent from 4 to 8 weeks; 7 per cent from 8 to 12 weeks; 6 per cent from 8 to 25 weeks; and 2.7 per cent from 25 weeks to a year.

The seven sickness surveys of the Metropolitan Life Insurance Company, covering 637,000 persons in families of policy holders, showed that 2.08 per cent were seriously sick, 1.9 per cent were disabled, and of those who were sick, 14.7 per cent were sick for less than 6 days; 39 per cent for less than 4 weeks; 10 per cent for from 1 to 2 months; 4.8 per cent for from 2 to 3 months; 7.8 per cent for from 3 to 6 months; 6 per cent for from 6 months to a year; 25.8 per cent for more than a year; and 5.9 per cent not specified. This is a better view of long-time disability in the general population, but is not so accurate for the workers as the benefit funds analyzed by the state health insurance commissions above noted, which take account only of men who were actually at work.

Similar figures in the California health insurance survey in 1915 showed that 10 men out of 1,262 suffered one-fourth the total loss of working days. In Philadelphia a study made

for the Pennsylvania Health Insurance Commission showed that 9 out of 201 men who lost time accounted for one-third of the entire group loss. Five men lost an average of more than 525 consecutive days.

The benefit fund study by the state health insurance commissions, which represents workers only, brings out the significant fact that, while the cases of from 8 to 14 days in duration represented 34.6 per cent of the total number, they represented only 10.7 per cent of the total time lost; that cases of less than 12 weeks' duration represented 90.6 per cent of the cases and only 62.5 per cent of the total loss; and that cases of less than 26 weeks' duration represented 96.6 per cent of all cases and only 81.48 per cent of the total loss. Stated conversely, the persons who were sick more than 12 weeks represented only 9.31 per cent, yet bore 32.56 per cent of the loss; and persons who were sick more than 26 weeks represented only 3.4 per cent of the cases and bore 18.52 per cent of the loss.

SICKNESS AND ECONOMIC DISTRESS

Sidney and Beatrice Webb say that, "In all countries, at all ages, it is sickness to which the greatest bulk of destitution is immediately due." In the United States, from investigations made in various communities, it would seem that from 25 to 50 per cent of the families asking charitable relief have been brought into the dependent group because of sickness. Edward T. Devine, the head of the New York Charity Organization Society, says:

Ill health is perhaps the most constant of the attendants of poverty. It has been customary to say that 25 per cent of the distress known to charitable societies is caused by sickness. An inquiry into the physical condition of the members of the families that ask for aid, without for the moment taking any other complication into account, clearly indicates that whether it be for the first cause or merely a complication from the effect of other causes,

physical disability is at any rate a very serious disabling condition at the time of application in three-fourths — not one-fourth — of all the families that come under the care of the Charity Organization Society, who are probably in this respect in no degree exceptional among families in need of charitable aid.

As the result of an investigation covering forty-three cities and over 30,000 charity cases the United States Immigration Commission found that illness of the bread-winner or other member of the family was a factor in 38.3 per cent of the cases of those seeking aid. In New York City "sickness or deformity" were present in two-thirds of the 3,000 families assisted by the Charity Organization Society in the first five months of 1916; in Chicago sickness is reported as the primary factor in 25 per cent of the cases cared for in 1917 by the United Charities Organization, and as a contributory factor in 45 per cent of the other cases; in San Francisco and Los Angeles sickness was the primary cause of destitution in 50 per cent of over 5,000 charitable cases.

Suppose we allow that the adult wage-earner loses on an average but 2 days annually as the result of "colds." Let us estimate the daily wage of such men at \$4. It is certain that large numbers of people who are kept from their work by "colds" sustain a loss equal to many times this sum. Now, estimating that we have, say 15,000,000 of wage-earners who are thus afflicted each year, it will at once appear that we have a direct economic loss of \$120,000,000.

Further inquiries conducted by the author tend to show that the average individual spends from \$2 to \$4 on either patent medicine, "cold cures," or physicians' fees each year in the treatment of this so-called minor affliction. A very moderate estimate for what is spent directly on the treatment of colds each year would be about \$40,000,000, and this hardly makes allowance for the money spent in treating colds in the case of infants, children, and other non-wage-earners,

all of whom suffer equally from this complaint. Thus, by the most moderate estimates based upon fairly reliable data, we have a direct annual loss to the American people of \$160,000,000 as the result of colds. If the real facts were known and we were in possession of absolutely reliable statistics, we believe this sum would mount up to more than \$200,000,000. It certainly would if influenza and its after disability and treatment were taken into account.

THE BOSTON STATISTICS

In Boston, 407 families were studied, averaging a little more than 5 persons per family. The average expenditure for sickness was \$49.76, or about 3.5 per cent of the average annual income. Here, again, the expenditure varied with income. In the group under \$900 there was an average outlay of \$23.18. In the group over \$2,500 the average expenditure was \$67.42.

It may be fair to assume, however, from the more recent investigations, that the average expenditure of a family in the \$1,000 income group may vary from 3 per cent to 5 per cent of the total income.

Probably some light may be thrown upon the subject if we study it from a different angle. In recent sickness surveys made by the Metropolitan Life Insurance Company, it was shown that the average individual is sick 7 days per annum.

If we take as our unit the average family of 5 persons, consisting of father and mother and 3 children, and use the above average of 7 days' illness per member, we may assume that in such an average family there are 35 days of illness per annum. On the assumption that half of the incapacitated are chronic invalids who do not require the daily visit of the physician, it is probably not an exaggeration to assume that the 35 days of illness would require 17 visits. The cost of a

physician's visit in the home has increased along with the other necessities of life. It is doubtful whether in the large cities physicians' services can be obtained today under \$2 per visit. This would mean \$35 per annum for physicians' services alone. It is true, of course, that many of these patients are in hospitals and institutions. The cost of this hospital service would probably run as high as the cost of the physicians' visit to the home. It is quite unlikely that the average modern hospital can give service under \$2 or more per diem. It is immaterial, of course, whether such service is given free or is paid for. It must be included in the amount which should be provided in the family budget for self-sustaining families.

In this calculation no provision has been made for dental care of the members of the family. In the opinion of competent oral hygienists, prophylactic care should be given to the teeth at least twice a year. Assuming that it were done only yearly, the expense for this would be at the lowest possible estimate approximately \$10 per annum. Nursing care given by a visiting nurse would vary from \$10 to \$20 per annum. It is difficult to make any estimate of the cost of eye-glasses and the care of the eyes generally but it would be safe to assume an expenditure of \$10 per annum.

It is difficult to see how the average family of wage-earners which does not avail itself of medical charity can get on with less than about \$75 per year as its minimum expenditure for combined dental and medical care.

ECONOMIC LOSS IN NORTH CAROLINA

The white male population of North Carolina, at ages 15 and over, is estimated at 492,585, for the year 1916. On the hypothesis that the sickness rates of the survey remain constant throughout the year, we may assume that, at any time, at least 12,512 white males are sick. This means approxi-

mately 3,753,600 days of disability from work for this group of the population using 300 working days per year for each individual as a basis of calculation. Similarly we may assume that there are 16,835 white females constantly sick throughout the year for a total period of 5,050,500 days of disability from pursuit of the daily occupations of life. Among colored males our estimate is 1,561,200 days of disability for 5,204 persons constantly sick, and for colored females a total period of disability of 2,607,900 days for 8,693 persons. No monetary estimates of disability need be computed to emphasize this enormous loss of working time in the productive years of life. Whatever the financial estimate based upon wage loss, we have still to consider the cost of medical attendance, nursing care and drugs, and the far-reaching effects of sickness in impairing the living and working efficiency of the families affected by the disability of one or more members.

THE PITTSBURGH SURVEY

It is reasonable to assume, for purposes of computing the estimated loss to industry from sickness in Pittsburgh, that the sickness rates observed during the month of March operate constantly throughout the year. This assumption will produce fairly conservative figures. Thus, among an estimated number of 215,720 males aged 15 years and over in Pittsburgh, at a rate of 20.2 persons per 1,000 constantly sick and unable to work, there would be 4,358 adult males constantly ill and unable to work on this average throughout the year. Assuming 300 days as the average working year, we have a loss of 1,307,400 working days per year. The sickness-rate involving disability for work, applied to 202,238 females 15 years of age and over, would produce the figure of 3,701 females constantly sick throughout the year. This implies a loss of 1,110,300 working days per year. On a basis of the total number of males 15 years

of age and over exposed to disabling sickness in Pittsburgh, there would be an average loss of 6.1 days per year per person; for females 15 years of age and over, we may safely assume an average loss of working capacity per female exposed of 5.5 days per year.

CALIFORNIA DATA

The Industrial Welfare Commission of California published in the year 1917 the records of one year's expenditures of 600 working women in San Francisco and Los Angeles. The records were classified according to their earning capacity and occupation. The amount spent by each group for medical services was approximately 4 per cent of the income.

Similarly, in a group of 251 laundresses, the expenditure for medical and dental care amounted to 5.1 per cent of their aggregate earnings. The bulk of the cases in this group had an actual income of from \$350 to \$500 per annum. The average annual expenditure for medical and dental care was approximately from \$18 to \$25 per annum.

The Commission also presented the records of 264 waitresses. In this group, 3.9 per cent of the aggregate earnings was expended on medical and dental care each year.

One of the studies for the year ending March 31, 1916, made among 508 families in Cleveland, Lorain, and Toledo showed an average expenditure of \$41.79 for medical care and \$8.59 for dental care. Of the families in this group 20 per cent spent less than \$10 for medical care and more than 17 per cent between \$10 and \$19. At least two-thirds of the entire group spent less than \$40 per year for medical care. In Columbus, Ohio, a similar study of 211 families showed that \$42.41 was spent for medical care per family and \$6 for services of the dentist.

ECONOMIC VALUE OF POSTPONING DEATH

By many authorities and by numerous methods efforts have been made to arrive at an estimate of the value — in dollars — of increased health and efficiency and to estimate the economic value of lives saved as a result of better sanitary surroundings and improved hygienic living conditions.

The economic value of a given life is arrived at by estimating the worth of a laborer's output at various times during his life by discounting his chances of future earnings and then subtracting the cost of his maintenance. In this way we make a rough estimate of the economic saving which may be effected by improving the health and increasing the length of life of the American wage-earner.

It is generally assumed that about three-fourths of those of working age are actually wage-earners or the equivalent — housekeepers. The money value of an individual thus reckoned starts out at about \$150 for the first year and gradually rises to about \$7,000 at the age of 30, after which there is a steady decline until it reaches zero at the higher and inactive ages. This estimate would about assume \$1,200 a year to be the average earnings of middle life. Applying this conjecture to the present American population we find that the estimated or average value of a person to be in the neighborhood of \$5,000.

On this basis, the value of the average person who is now sacrificed by preventable disease is reckoned at about \$3,000 — owing to the fact that the age of those who die is considerably greater than the age of the living. Applying this estimated life-value of \$5,000 to a supposed population of — say 100,000,000 — and we find that the economic value of the people of this country to be \$500,000,000,000. Now, since the number of preventable deaths has been estimated

at almost 1,000,000 a year (at least 500,000 by the most conservative) it would appear that our annual preventive death-waste runs anywhere from \$1,500,000,000 up to \$3,000,000,000.

ECONOMIC VALUE OF INCREASED HEALTH

In the preceding chapters estimates were noted which indicate that there are from 3,000,000 to 5,000,000 persons sick all the time in the United States. About one-third of this number of disabled persons are in the working period of life and of this number of persons of working age fully 75 per cent are actual wage-earners. This would indicate that there are at least 1,000,000 bona fide wage-earners sick all the time. If we estimate the average economic value of these persons at the figure already noted — \$1,200 per year — it would give us an aggregate annual economic loss from illness equal to \$1,200,000,000.

We should add to this annual sickness money loss of over \$1,000,000,000 another \$1,000,000,000 for medicine, medical attention, nursing, etc., making the combined cost of our national illness considerably over \$2,000,000,000 a year. And it is a conservative estimate to suppose that at least one-half of this illness is preventable — making the net preventable sickness of the nation cost us a little over \$1,000,000,000 a year.

Now, if we add the preventable loss from death — say at \$2,000,000,000 — to this economic loss from preventable illness of at least \$1,000,000,000 it gives us the economic grand total of \$3,000,000,000 as the very lowest estimate of our annual economic loss from preventable diseases and premature — and preventable — deaths in the United States. It is the author's opinion that this figure should be more nearly \$5,000,000,000, but when we are dealing with figures that are probably based on conjecture, it behooves

us to be cautious and conservative in reaching our final conclusions.

Truly our greatest national resource is human life, and our supreme duty its prolongation. Our greatest national asset is health, and our greatest national business its promotion and betterment. • •

APPENDIX C

SPECIAL DIET LIST FOR AUTO-INTOXICATION

THIS diet is arranged with a view of preventing intestinal fermentation and the undue increase of acidity in the blood-stream, and is indicated in acidemia (acidosis), auto-intoxication, intestinal toxemia, so-called rheumatism, neuritis, colitis (catarrh of the bowel), flatulency, etc.

1. *Fruits*.—Ripe apples, ripe bananas, pears, peaches, melons, figs, dates, raisins, prunes, ripe olives, grapefruit, oranges, lemons, together with grape juice, blackberry juice, raspberry juice, and apple juice.

2. *Vegetables*.—Baked potatoes, tomatoes, raw cabbage, celery, and vegetable soups.

3. *Cereals*.—Hard breads, dextrinized cereals — such as Zwieback, toast, toasted flaked cereals, popped corn, rice biscuits, browned rice, gluten mush, macaroni, and oatmeal.

4. *Dairy products*.—Milk, cream, buttermilk, cottage cheese, butter, yolks of eggs, and malted milk.

5. *Nuts*.—Blanched almonds, Brazil nuts, cocoanuts, roasted chestnuts, filberts, and pecans.

6. *Foods to avoid*.—Meats of all sorts, fish, fowl, oysters, shell fish, lobsters, crabs, whites of eggs, old cheese, rich and highly seasoned foods, meat gravies, pastries, tea, coffee, and condiments. Eat sparingly of the legumes.

In dieting for auto-intoxication it should be remembered that frequent bowel movements are desirable. Go to stool at least twice a day. Do not take laxatives or cathartics unless prescribed by your physician. Mineral oil and bran are not cathartics.

Eat more largely of those foods which assist in decreasing the amount of acid in the blood-stream—see comparative list of acidifying and alkalinizing foods (p. 172).

For the home treatment of constipation we place the following instructions in the hands of our patients:

SPECIAL DIET LIST — LAXATIVE FOODS
(ANTI-CONSTIPATION DIET)

This list of foods is laxative in its action and is indicated in all cases of chronic constipation, "biliousness," and sluggish action of the bowels.

1. *Sugars*.—All forms of sugars, especially fruit sugar, marmalade, molasses, honey, syrup, and malt. All the concentrated fruit juices. Sweet fruits, such as figs, dates, raisins, prunes, fruit jellies, etc.

2. *Sour fruits*.—All sour fruits and fruit acids, such as apples, grapes, peaches, plums, tomatoes, grapefruit, currants, gooseberries, melons, and all berries with seeds. Fruit juices, especially from sour fruits—grape juice, apple juice, lemonade, etc.

3. *Foods rich in fats*.—Butter, cream, eggs, eggnog, ripe olives, nuts—especially pecans, Brazil nuts and pine nuts; also olive oil and bacon.

4. *Foods rich in cellulose*.—Wheat flakes, asparagus, cauliflower, spinach, sweet potatoes, green corn and popcorn, graham flour preparations and oatmeal foods, whole wheat preparations, bran bread, apples, blackberries, cherries, cranberries, melons, oranges, peaches, pineapples, plums, whortleberries, raw cabbage, celery, greens, lettuce, onions, parsnips, turnips, oyster plant, lima beans, and peanuts.

5. *Miscellaneous foods*.—Buttermilk, koumiss, meat broths, vegetable soups, cereals cooked with one-third bran, gingerbread, fig puddings, gelatine, and agar-agar.

6. *Avoid*.—Tea, coffee (unless very weak), cocoa, choco-

late, alcohol, much lean meat, rice, tapioca, farina, cheese, most nuts, sweet milk, eggs, salted meats, fried foods and rich deserts, puddings, and pastries.

7. *Remember*.—That a glass of cold water taken the first thing on getting up in the morning, and some fresh fruit on retiring is very helpful in many cases. Also remember that you can take one to three tablespoonfuls of mineral oil once or twice a day for considerable periods of time without doing any harm in the treatment of constipation.

The successful treatment of chronic constipation requires, in addition to the diet, that the patient should carefully carry out these general rules, which are herewith presented, and, in addition any and all special instructions given by the physician. Do not take any laxatives (except mineral oil when ordered) unless they have been specially prescribed for you.

THE HOME TREATMENT OF CONSTIPATION

1. *On rising in the morning*.—Remove the Moist Abdominal Bandage; drink two-thirds of a glass of cold water; and spend 15 to 20 minutes as instructed by the physical director, in the following exercises, before dressing: abdominal lifting with deep breathing, auto-massage, leg raising, trunk twisting, trunk bending—forward and to sides, lying down for the trunk raising, and sitting for the trunk circumduction. Immediately following these exercises, go to stool. Have feet raised 8 or 10 inches, so as to simulate the squatting position.

2. *Breakfast*.—Should include bran or bran bread, and two or three of the following foods: apples with skins, grapefruit, cranberries with skins (but little sugar), and figs. Immediately after breakfast walk 15 minutes in the open air, practicing deep abdominal breathing. If the results

at stool before breakfast were not satisfactory, vaseline rectum and go to stool again.

3. *Lunch and dinner.*—Lunch should consist of fruit only, while dinner should include bran bread and two of the following foods: spinach, celery, carrots, parsnips, squash, and cabbage.

4. *Before retiring.*—Walk in the open air for 15 minutes, after undressing exercise same as morning; and on retiring apply the Moist Abdominal Bandage as directed below.

5. *Directions for applying Moist Abdominal Bandage.*—Spread out the flannel bandage and over it place the mackintosh. Wring dry the cotton strip from cold water, and spread it over the mackintosh. Wrap all three layers, the wet cloth next the skin, closely about the body, so as to prevent the air from getting under it. Be sure that the feet are warm while adjusting the bandage. In the morning remove the bandage, and rub the skin briskly with a Turkish towel dipped in cold water, until the skin is pink and dry. The cotton strip should be boiled every other day to avoid skin eruptions.

6. *Recipe for bran bread.*—Two eggs, beaten separately; $\frac{3}{4}$ cup of molasses, plus 1 round teaspoonful soda; 1 cup of sour cream; 1 cup of Sultana seedless raisins; 1 cup of wheat flour, plus 1 heaping teaspoonful baking powder; 2 cups of bran; stir well and bake 1 hour.

“REST CURE” DIET

(THE MILK AND FRUIT-JUICE RÉGIME)

The “Rest Cure” diet or the “Milk and Fruit Régime” should not be confused with the old so-called milk diet. This new “milk and fruit diet” is used in connection with the “Rest Cure”—the patient remaining in bed and “feeding” according to the schedule. This diet is also of great value in those cases where it is desired to bring about a change in the “intestinal flora”—where it is desirable to starve out and

drive out the more vicious and harmful bacteria so commonly inhabiting the bowel tract. As a general rule the following schedule is advised:

1. *First two days.*— For the first two days take only orange juice — two dozen a day — with hot water in abundance.

2. *Third day.*— On the third day give whole milk and fruit juice, as follows: one glass of whole milk sipped through a straw every hour. With each glass of milk the juice of one-half lemon and the juice of one whole orange (without sugar) should also be sipped through a straw — taking three sips of milk, one sip of fruit juice, etc.

3. *Fourth day and after.*— On the fourth day carry out the same program, only make the interval forty-five minutes instead of one hour. To the four or five quarts of whole milk to be taken each day, add cream, gradually, in increasing quantities until the mixture contains from one-fourth to one-third cream. In addition to this milk and cream mixture, the lemon and orange juice is continued just as directed for the third day's feeding. If the bowels are too loose, decrease the amount of lemon juice.

4. *Feeding intervals.*— As a rule it is best to start the "feedings" at 7:30 A. M. and "feed" every forty-five minutes to one hour until 7:30 P. M.

5. *Quantity of milk.*— A small amount of milk is constipating, but a large amount is laxative. In this régime it is necessary to take four to six quarts of milk every twenty-four hours and fruit juice as prescribed.

6. *Vegetables.*— Once a day, say at 2:00 P. M., lettuce or celery may be added or given in the place of the fruit juices for those who prefer it.

7. *In case of trouble.*— If the schedule in any way disagrees notify your doctor. Nausea is often overcome in the first few days of the "Cure" by increasing the milk.

INDEX

INDEX

- Abnormal physical conditions, leading causes of, 318
- Abortion, 120
- Accidents, caused by automobiles, 38; industrial, 309; machinery, deaths caused by, 38; mine, deaths caused by, 38; number of in mines, 63; railroad, deaths caused by, 63; street-car, deaths caused by, 38; various, number of deaths caused by, 63
- Age, influence of, on mortality statistics, 34; medium, at death of American people, 41
- Air, impure, effect on lung cells, 138
- Alcohol, 20; amount consumed, 42; and cell destruction, 139; effect on blood-pressure, 177; effect on kidneys, 149
- American citizenship, and race, 8
- Americanitis, and overeating, 157
- Americanization problems, 4
- Amyloid degeneration, 137
- Aneurism, deaths caused by, 38
- Anti-constipation diet, 405
- Anti-tuberculosis societies, 105
- Aortic regurgitation, 146
- Apoplexy, and high blood-pressure, 147; deaths caused by, 38; "stroke" of, 143
- Arches, of feet, falling, 42
- Army, military rejects previous to World War, 15
- "Aristocracy of the unfit," the, 329
- Art of eating, the, 186
- Arteries, function of, 143; hardening of, 144; hardening of, deaths caused by, 38
- Arterial degeneration and venereal diseases, 156; disorders, deaths caused by, 38
- Arteriosclerosis, and blood-pressure, 174; and high blood-pressure, 147; defined, 144
- Arthritis, gonorrheal, 116
- Asiatic cholera, and the army, 79
- Asphyxiation, deaths caused by, 38
- Auto-intoxication, and blood-pressure, 158; and digestion, 42; defined, 158-159; special diet list for, 404
- Average length of life, 34; and insurance companies, 41; methods of figuring, 40; of infant, 40; of the aged, 40
- Babies born in almshouses in 1910, classified according to whether father was in the institution or not, and as legitimate or illegitimate, by divisions — Table No. 13, 391
- Bacilla, tubercle, and milk, 105
- Backward child, and marriage, 277; the, 272; individual, the, 299
- "Backwardness" and "dullness," 256
- Backwardness, and eyestrain, 272; and mental subnormality, 276; and "middle-grade" morons, 300

- Bailey, cited on mental defects, 239
 Baldness, 28
 Ball and Thomas, cited on prostitution, 120
 Bath, effect on blood-pressure, cold, 167; neutral or tepid, 167; sun, 167
 Bathing, 189
 Barr, on mental defectives, 32r
 Binet-Simon, scale, 302; test, 276, 287, 299
 Biologic aspects of eugenics, 360
 Biologist's attitude, the, toward defectives, 333
 Birth-rate, decline of, 32; in civilized countries, 32; in descendants of original colonies, 34
 Births, illegitimate, 304
 Black plague, the, 110; how to fight, 126
 Blind, in institutions, 330
 Blood, and foods which tend to acidify, 172; to alkalize, 172
 Blood-pressure, and alcohol, 177; and arteriosclerosis, 174; and auto-intoxication, 158; and constipation, 159; and meat-eating, 157; and morphine, 177; and the mental attitude, 160-161; and the milk diet, 173; effect of coffee on, 156; of neutral bath, 167; of cold bath, 167; of sun bath, 167; of sleep and rest, 167; of tea, 156; effect on heart and blood vessels, 142; harmful methods of lowering, 177; high, 19, 146; high, and Bright's disease, 147; high, and coffee, 156; high, and heart failure, 147; high, and mental diseases, 147; high, and apoplexy, 147; high, and arteriosclerosis, 147; high, and tea, 156; high, and tobacco, 154; high-pressure states, 176; in relation to age, 174; low-pressure states, 176; mean, 175; normal, 173, 174
 Blood test for syphilis, 113
 Blood vessels, bursting of, 143; defined, 143
 Borderland defectives, 316
 Boston, sickness statistics, 397; sickness survey of, 56
 Bovine tuberculosis, 105
 Boys' Court, and crime, 295
 Breathing, deep, 183
 Bright's disease, 148; and high blood-pressure, 147; chronic, 150; increase of death-rate since 1900, caused by, 42; number of deaths caused by, 37
 Bromids, headache powders, etc., 178
 Caffeine of coffee, effect on blood-pressure, 156
 California, commission survey, 51; survey of sickness and economic loss to wage-earner, 400
 Cancer, among men, 92; among six leading causes of death, 93; among women, 92; and hemorrhoids, 93; and life insurance companies, 98; and radium, 98, 99; and X-ray, 98, 99; annual number of deaths caused by, 62; cause of, 99; "cures," frauds, and swindles, 97; death-rate doubled in forty years, 95; death-rate in Chicago, 95; death-rate in the U. S., 95; deaths, prevention of, 96; forms of, 93; more dangerous to women than to men, 97; increase of in Boston, in thirty years, 93; increase of in the U. S., 92; not contagious, 96; not hereditary, 98; number of deaths caused by, 38; of bowels, deaths caused by, 93; of breast, 97; of breast, deaths caused by, 93; female generative organs, deaths caused by, 93; of generative organs, 97; of mouth, deaths caused by, 93; of stomach and liver, deaths caused by, 93; prevalence of, 93

- Causes of death in the registration area (1917) — Table No. 2, 377-378
- Cell, poisoning and tobacco, 139; degeneration, 137; poisons, 138;
- Cells, and alcohol, 139; and chemical poisoning, 136; and condiments, 138; and metabolic poisons, 138; effect of impure water on, 138; lung, impure air, effect on, 138
- Centenarians, lessening number of, 40; living, 66-67
- Chancere, soft, definition of, 119
- Chicago Morals Court, and prostitution, 253
- Chicago Vice Commission, quoted on prostitution, 120-121
- Children, and eyestrain, 272; and tuberculosis, 104; backward, 272; born of pauper mothers, 308; physical defects in, 274
- Chorea, or St. Vitus' dance, 206, 325; Huntington's, 317
- Chronic diseases, advice for, 173; infections, 160
- Cigarette smoking, and stunting of growth, 139
- Clothing healthful, 185
- Coffee, amount consumed in the U. S. 156; and high blood-pressure, 156; increased consumption of, 42
- Colds, and the wage-earner, 396; neglect of, 62
- Collies, cited on syphilis, 123
- Committee of Sanitary and Moral Prophylaxis (Baltimore), report of, 122
- Committee of Seven (New York), report of, on venereal infection of women, 122
- Comparison between native and foreign insane — Table No. 9, 387
- "Complement fixation test," 118
- Condiments, effect on "old-age" diseases, 156, 157; and cell destruction, 138
- Congenital syphilis, 111
- Constipation, and blood-pressure, 159; home treatment of, 406
- Constitutional inferiority, 257
- Consumptives, number of in the U. S., 60
- Continence, compatible with health, 127
- Crime, a survey of, 288; and feeble-mindedness, 280, 292; and environment, 312, 282; and punishment, 312; and race, 285; findings of Boys' Court in, 295; influences predisposing to, 281, 283; physical side of, 293
- Criminal heredity, 290
- Criminals, and idiocy, 236; as a class, 289; in institutions, 331
- Dana, cited on insanity, 217
- Davenport, cited on mental defectives, paupers, and criminals, 60, 332
- Deaf, in institutions, 330
- Death, report of the Census Bureau on the principal causes of, 36; and principal causes of in the U. S., 36
- Death-rate, and overstrain of vital organs, 41; caused by cancer, doubled in forty years, 95; caused by various accidents, 63; due to typhoid fever, in Chicago, 76; in Great Britain, 76; in the U. S., 76; from disease in U. S. Army during World War, 80; from tuberculosis, 103; in the U. S. per 1000 of population from 1907 to 1917 — Table No. 1, 377; increase of, from Bright's disease since 1900, 42; increase of, from degenerative disease, 61; increase of since 1906 caused by diseases of heart, 42; city and rural compared, 35; effect of race on, 35; from "old-age" disorders, 150; number due to cancer, 92; statistics of, 34; table of, for white males, 35; world's, 24

- Death-rates at different ages in the registration area—Table No. 4, 382
- Deaths, number due to accidents and violence, 63
- Decadent classes, 329
- Defective problem, the, in Illinois, 338
- Defectives, and industrial accidents, 309; and medical aid, 321; and surgery, 349; borderland, 316; education of, 348; "functional," 324; in institutions, 330; marriage of, 348; mental, in hospitals, 60; number of school children in England and Wales, 60; segregation of, 348; sterilization of, 349; why support?, 355
- Defects, physical, in school children, 274, 275; physical, number of, in Chicago school children, 60
- Degenerative diseases, defined, 133; increase of, 83-84
- Delinquents, effect of religion on, 313; juvenile, 296; mental and manual training for, 313
- Dementia praecox, 257, 320
- Detention of the irresponsible, 312
- Detroit Health Department, cited on prostitution, 120
- Devine, Edward F., quoted on ill health in relation to poverty, 395
- Diabetes, deaths due to, 38
- Diarrhea, deaths caused by, 38
- Diet list, for auto-intoxication, special, 404; for kidney disorders, 169-171; of laxative foods, 405
- Dietetic errors, and degenerative disorders, 156; habits, improved, 88
- Disease, prevention of, 191-192; toxins, 173
- Diseases, contagious and lessening of death-rate, 39
- Distribution of feeble-minded—Table No. 10, 388
- Divorce, and dysgenic traits, 353
- Draft-disability findings, significance of, 13
- Draft, examination, causes for rejection, 15; military, 12; military and tuberculosis, 104; number of men registered in, 12
- Drowning, deaths caused by, 38
- Drugs, consumption of, 156; habitual use of, 154
- Dugdale, cited on the Jukes family, 334
- Dysgenic traits and divorce, 353
- Ear trouble, 19
- Eating, the art of, 186
- Economic loss, from sickness, 392; through ill health in California, 400; in North Carolina, 398
- Economic value, of increased health, 402; of postponing death, 401
- Education of defectives, 348
- Endocarditis, and the gonococcus germ, 116
- Enteritis, deaths caused by, 38
- Environment, and crime, 282, 312
- Epididymitis, 116
- Epilepsy, and heredity, 265; and sex perversion, 263; in New York, 265
- Epileptic problem, the, 263
- Epileptics, and detention, 312
- Erb, cited on syphilis, 123
- Estabrook, quoted on the Jukes family, 355
- Eugenic examinations, 363; investigations, 89
- Eugenics, biologic aspects of, 360; financial aspects of, 361; humanitarian side of, 360; restrictive, desirability of, 358; restrictive, ethics of, 360
- Evans, quoted on epilepsy, 266
- Examination, annual medical, 14
- Examinations, draft, causes for rejection, 15; medical, value of annual, 43

- Exercise, and "old-age" disorders, 159, 166; physical, 184
- Exertion, and bad heart, 41; and exercise, 41
- Expectation of life, loss of, from 1890 to 1910, 46
- Eyesight, defective, 16
- Families, largest, among most recent immigrants, 34
- Fatigue, and neurotic disorders, 63
- Fatty degeneration, 137
- Feeble-minded, and physical defectiveness, 248; first attempt at housing of, 346; in institutions, 331; in institutions—percentage reported as physically defective—Table No. 8, 386
- Feeble-mindedness, and crime, 280, 292; and drink, 309; and heredity, 242; and physician's attitude, 248; and poverty, 306; and prostitution, 302; defined, 233, 286; in relation to vice and poverty, 299; in the U. S., 236; origin of, 241; standards of, 239
- "Feebly inhibited," the, 260, 326
- Feet, remedies for, 17; troubles of, 17
- "Female complaint," origin of, 120
- Female paupers enumerated in almshouses on January 1, 1910, or admitted during 1910. who are reported to have borne children, classified by number of children born, and by race, nativity, and age of mother, for the United States as a whole, 390
- Financial aspects of eugenics, 361
- Fisher, cited on life extension, 65
- Food, bad, and effect on cells, 138; increased amount consumed, 42
- Foods, laxative, special diet list of, 405; tending to acidify the blood, 172; to alkalinize the blood, 172
- Forsyth, quoted on longevity, 46
- "Fourth Disease," the, defined, 119
- Fournier, cited on syphilis, 123
- "Functional defectives," 324
- Gall bladder, and X-ray, 173
- Glands, sweat, 148
- Goddard, cited on feeble-mindedness, 244; quoted on the Kallikak family, 356
- "Going insane," 224
- Gonococcus germ, 116
- Gonorrhea, 20, 124; and sterility, 116; cause of, 116; defined, 116; treatment of, 117-118.
- Gonorrheal arthritis, 116; infection, cause of sterility in women, 118; infection in children, 117
- Gould, quoted on backward children, 272
- Gowers, cited on inheritance in epilepsy, 265
- "Habit disorders," increase of, 83
- Health and Old Age Insurance Commission of Ohio, sickness survey of, 52
- Health audit, and business, 45; organizations, modern, 89; the modern, 44
- Health, "fads," 50; laws of, in a nutshell, 181; literature, 86; inventory, national, 12; "span" of life, 67-68; supervision, annual, 88
- Healthful clothing, 185
- Healy, cited on stigmata of degeneracy, 319; quoted on Binet scale, 239; on cause of crime, 281, 282; on constitutional inferiority, 257; on heredity and crime, 291; on hyper-sexualism, 268; on masturbation, 270; on sociopathic individuals, 301; cited on subnormality, 276

- Heart, affections, 19; compensation of, 146; disease, early symptoms of, 144-145; disease, increase of death-rate from, since 1900, 42; disease, principal cause of death in the U. S., 61; defined, 143; disorders, number of deaths caused by, 37; diseases, increasing, 142; failure, 142; failure due to high blood-pressure, 147
- Hereditary disorders, general, 325
- Heredity, and cancer, 98; and criminals, 60; and epilepsy, 265; and feeble-mindedness, 242; and hysteria, 203; and inefficiency, 50; and insanity, 222; and internal secretions, 322; and longevity, 140; and morality, 127; and morons, 253; and old age, 162; and pauperism, 60; and psychasthenia, 200; and sex perverts, 267; and syphilis, 111; and the Kallikak family, 356; and tuberculosis, 107; criminal, 290
- Hernia, or rupture, 18
- Heron, David, cited on decline of birth-rate of the healthy, 243
- Hickson, cited on the backward child, 272; quoted on the cause of crime, 253; definition of "idiot," "imbecile," "moron," and "sociopath," 254
- Homicides, number of deaths caused by, 39
- Hookworm disease in the South, 62
- Hot weather, deaths caused by, 38
- Hough, cited on syphilis, 124
- Howard, cited on malaria, 62; in the South, 62
- Huntington's chorea, 317, 326
- Hygiene, advances in, in quarter century, 71; personal, and health propaganda, 84; race, 8; teaching of, in public schools, 85
- Hygienic teaching, improved, 87
- Hyper-sexualism, and the Negro, 268
- Hypochondriacs, 206
- Hysteria, 202; hereditary nature of, 203; symptoms, 204
- Idiots, and criminality, 236
- Illegitimate births, 304
- Illinois commission, sickness survey of, 52
- Immigrants, Americanization of, 4; and insanity, 227; as disease carriers, 356-358
- Imbeciles, 236
- Industrial medical supervision, 86
- Inebriety, 308
- Infant welfare, 86
- Infections, chronic, 160
- Influenza, and the army, 79; deaths caused by, 38
- Insane, enumerated at each census from 1850 to 1910—Table No. 5, 383; marriage laws relating to the, 224; in institutions, 331; in institutions compared to number of students in schools of the U. S., 63; of various ages in the U. S., 1910—Table No. 6, 383
- Insanities, non-hereditary, 223
- Insanity, among immigrants, 227; among Negroes, 229; and heredity, 222; and menopause, 225; conditions leading to increase of, 218; in different sections of the U. S.—Table No. 7, 385; in Great Britain, 213; in the U. S., 212; increasing, 212; recurrent, 226; statistics, analysis of, 218; statistics on, 214
- Insanity's threat, 221
- Institutional defectives, 330
- Institutions, criminals in, 331; feeble-minded in, 331; needed for mental defectives and delinquents, 341; number of blind in, 330; of deaf in, 330; of insane in, 331; paupers in, 331

- Insurance companies, and average length of life, 41; and syphilis, 115
 Insurance supervision, 86
 Internal secretions, and heredity, 322
 Iodids, and syphilis, 114
 Ishmael, tribe of, 335
 Ishmaelites, racial, 334
- Johnson, quoted on defectives, 332; on inebriety and heredity, 309
 Jörger, cited on the Zero family, 337
 Jukes family, the, 334
 Juvenile delinquents, 296
- Kallikak family, the, 356
 Kehoe, cited on increase of degeneracy, 322
 Kidney, 18; defined, 148; disorders, chronic, 148; deaths caused by, 37; special diet list for, 169-171
 Kidneys, and alcohol, 149; and narcotics, 149; and tobacco, 149; and water drinking, 149; overworking the, 149
 Kraepelin, cited on relation of heredity to insanity, 265
- "L." family, the, 335
 Laennec, cited on syphilis, 123
 Langmead, quoted on feeble-mindedness, 239
 Lankaster, Sir Ray, quoted on racial degeneration, 329
 Laughlin, cited on defectives in the U. S., 333
 Law, sterilization, of Indiana, 349
 Laws, marriage, relating to the insane, 224; of health in a nutshell, 181
 Life, average length of, 34, 39; Expectancy Tables—Table No. 3, 379-381; "health span" of, 67-68; insurance companies and cancer, 98
 Liver, cancer of, 38
- Lombroso, cited on relation between genius and insanity, 263
 Longevity, and heredity, 140; in the U. S., 45; of foreign-born whites, 46; of native Americans, 46
 Loss of working time and wages, 393
 Lung, cells and impure air, 38; trouble, 19
- Malaria, 62
 Marriage, and the backward child, 277; and syphilis, 115; laws relating to the insane, 224; of defectives and degenerates, legislation against, 348; rates, decline of in civilized countries, 32; restrictive, 352; restrictions on age, 354
 Massage and skin friction, and "old-age" disorders, 166
 Maternal impressions, 317
 Masturbation, 269
 McDougall, quoted on cause of crime, 281
 Meat-eating, and effect on blood-pressure, 157; and "old-age" disorders, 157; effect on kidney, liver, and heart, 158
 Medical, examination, annual, 14, 43; inspection of school necessary, 61
 Medicine, advances in, for military use, 79; and mental defectives, 321; preventive, 14; preventive, and all phases of public health improvement, 74; preventive, triumphs and failures of, 71
 Medicines, patent, increased amount consumed, 42
 Melting-pot, delusion of, 9
 Mental and manual training, 313; attitude and blood-pressure, 160; defectives in hospitals, 60; diseases, 20; diseases and high blood-pressure, 147; subnormality and backwardness, 276
 Menopause, and insanity, 225
 Mercury, and syphilis, 114

- Metabolic poisons, and cells, 138
 Metropolitan Life Insurance Company, sickness surveys of, 51, 52, 53; statistics on sickness and wage-earner, 397; unemployment survey, 52, 53
 Microbe, and microscope, 74; mastering the, 75
 Microscope, and microbe, 74; and sanitation, 73
 Migraine, 208
 Milk, and fruit-juice régime, 407; diet, and blood-pressure, 173; tuberculosis contracted from, 105
 Miners, number of, killed, and injured by accidents, 63
 Mitral regurgitation, 145; stenosis and women, 145
 Morality and heredity, 127
 Moron, the, 236; colony proposed, 259; "middle-grade," and backwardness, 300; problem, the, 253; statistics, 255
 Moronism, and heredity, 253; defined, 254
 Morphine, effect on blood-pressure, 177
 Morrow, quoted on venereal disease, 124
 Murders, committed, annual, 63
 Muscles, weakened, 41, 42
 Nam family, 334
 Narcotics, and feeble-mindedness, 309; effect of, on cells, 139; on kidneys, 149
 Natural selection, 77, 333
 Negro, and disease, 35; and hyper-sexualism, 268; and insanity, 229; mortality among children, 35; teeth of, 27
 Nephritis, 148, 150
 Nervous diseases, 20; causes of, 64; hypertension, 175
 Nervousness, general, 195
 Neurasthenia, earmarks of, 198; symptoms of, 197
 Neurasthenics, 196
 North Carolina, sickness survey of, 55
 Number of insane in institutions compared to students in schools of the U. S., 63
 Ohio, sickness survey in, 52
 Old age, defined, 139
 "Old-age" diseases, and conditions, 156; increase of, 83, 132, 140; and exercise, 159, 166; and deficient elimination, 159; and heredity, 162; and meat-eating, 157; and proteins, 156; causes of, 154; remedies for, 165; treatment of, 165
 Ophthalmia neonatorum, 116
 Osler, Sir William, cited on prostitution in Cologne, 120
 Overeating, and Americanitis, 157
 Overweight, 17
 Owen family, the, 335
 Paralysis, number of deaths caused by, 38
 Patent medicines, increased use of, 42
 Patriotism, highest, 369
 Paupers enumerated in almshouses on January 1, 1910, classified by race, nativity, parentage, sex, and age at enumeration, for the United States as a whole — Table No. 11, 389
 Paupers, in institutions, 331
 Pennsylvania Health Insurance Commission surveys, 51
 Personal liberty doctrine, the, and sterilization, 351
 Plague, great black, the, 110; white, the, 102
 Plagues, epidemic, 77, 78; not yet conquered, 78
 Philadelphia sickness survey, 52
 Physical conditions, abnormal, leading causes of, 318; exercise, 184; side of crime, 293
 Physically defective feeble-minded, 248
 Piles, or hemorrhoids, 18
 Pinkus, cited on venereal disorders, 123

- Pittsburgh sickness survey, 57;
economic loss from sickness in,
399.
- Pneumonia, deaths due to, 37
- Podstata, cited on insanity, 213
- Poellmann, quoted on defective
family, 338
- Poisons, cell, 138; metabolic, 138
- Poisoning, ptomaine, 138
- Pollack, cited on gonorrheal in-
fection in children, 117
- Population of cities, increase of,
in fifty years, 42
- Poverty, and feeble-mindedness,
306
- Prevention of disease, 191-192
- Prison reform, 312
- Problem of defectives in Illinois,
338; of delinquent and criminal
classes, 311; sickness, the, 51
- Problems, economic, 2; indus-
trial, 2; moral, in relation to
heredity, 5, 6; nation's health,
7; political, in relation to phys-
ical status of people, 3; race,
1; social, 4
- Prostatic trouble, 120
- Prostitution, 120; and feeble-
mindedness, 302; and findings
of Chicago Morals Court, 253
- Prostitutes, number of in U. S.,
121
- Proteins, and "old-age" dis-
orders, 156, 158
- Psychasthenia, 200; symptoms of,
201
- Psychopathic Laboratory, direc-
tor of, quoted on delinquency,
319
- Ptomaine poisoning, 138
- Pulse pressure, normal, 174
- Punishment, and crime, 312
- Pusey, cited on syphilis, 123
- Pyorrhea, 27
- Race, and American citizenship,
8; and crime, 285; effect of, on
death-rate, 35; hygiene, 8
- Racial instability, 205; Ishmael-
ites, 334
- Radium, and cancer, 98, 99
- Railroad accidents, number of
deaths caused by, 63
- Religion, and delinquents, 313
- "Rest Cure" diet, 407
- Rest, relaxation, and recreation,
189-191
- Restrictive eugenics, desirability
of, 358; ethics of, 360; legis-
lation regarding marriage of
defectives and degenerates,
348; marriage, 352; program
for unfit, 344
- Restricting the unfit, 344
- Rheumatism, 19
- Richards, cited on backwardness
in children, 273
- Rittenhouse, cited on degenera-
tive diseases, 132
- Rochester sickness survey, the,
53
- Rosanoff, cited on mental defi-
ciency, 339
- Rupture, or hernia, 18
- Sajous, quoted on dementia prae-
cox, 320; on "functional defec-
tives," 324; on heredity, 322-
324; on mental defectives, 322
- Salpingitis, 116
- "Salt habit," effect on heart, kid-
neys, and liver, 157
- Sanitation, ancient, 71; and the
microscope, 73
- School children, number of de-
fective in Chicago, 60; in Eng-
land and Wales, 60; in New
York, 60
- School inspection, 87
- Science, and the prolongation of
life of the mentally and phys-
ically inferior, 78; and the un-
fit, 39; dawn of modern sanita-
ry, 73; of sanitation, oldest
known in America, 73
- Segregation of defectives, 348
- Seguin, founded school for idiots
in Paris, 347
- Septicemia, 116
- Sex perverts, 266, 267
- Sexualism, abnormal, 268
- Sick-headache, nervous, 208

- Sickness, and business failure, 50; and domestic friction, 50; and economic distress, 395; cause of destitution in San Francisco and Los Angeles, 396; economic loss from, in North Carolina, 398; in Pittsburgh, 399; economic losses from, 392; in the U. S., preventable, 49; responsibility for, 392; statistics in Boston, 397; survey, 51; survey in Connecticut, 52; in Ohio, 52; in Ohio cities and economic loss from, 400; of Boston, 56; of North Carolina, 55; of Philadelphia, 52; of Pittsburgh, 57; of Rochester, 53; of the Illinois commission, 52; of the Metropolitan Life Insurance Company, 51, 52
- Simon, quoted on idiot, imbecile, and feeble-minded, 240
- Simple living, 87
- "606," and syphilis, 114
- Skin, and kidneys, 148
- Sleep and rest, effect on blood-pressure, 167
- Soft chancre, defined, 119
- Sores, and cancer, 96, 98
- Spasms, habit, and tics, 207
- Spirochaeta pallida, 111
- Stammering, and stuttering, 208
- Standard of vital endurance, 40
- Statistics, Boston sickness, 397; moron, 255; on insanity, 214; venereal disease, 122
- Stature, 23; England's military, lowered, 23; French, short of, 23
- Stenosis, mitral, among women, 145
- Sterility, and gonorrhea, 116; in women, caused by gonorrheal infection, 118
- Sterilization, law of Indiana, 349; laws, 358; objections to, 350; of defectives, 349; process of, known to ancients, 73
- Stigmata of degeneracy, and criminals, 319
- Stokes, cited on syphilis, 111; on syphilitics, 121
- Stomach, cancer of, 38
- Toxins, disease, 173; syphilitic, 139
- Tredgold, cited on decline of death-rate, 61; on mental unsoundness, 243
- Treatment, of gonorrhea, 117-118; of syphilis, 114
- Tribe of Ishmael, 335
- Tubercle bacilla, and milk, 105
- Tuberculosis, among children, 104; and heredity, 107, bovine, 105; causes of, 103; death-rate, 103; deaths caused by, 37; defined, 102; germs, and sunlight, 182; not inherited, 102; number constantly ill from, 62; suggestions to prevent, 106; symptoms of, 103.
- Tumors, number of deaths caused by, 38
- Typhoid fever, and the American farmer, 77; annual number of deaths caused by, 62; annual number of cases, 62; being eradicated, 76; deaths caused by, in Chicago, 76; in Great Britain, 76; in the U. S., 76
- Typhus fever, and the army, 79
- Underweight, causes of, 17
- Unemployment survey of Metropolitan Life Insurance Company, and sickness or accident disability, 53
- Unfit, restriction of, 344
- Urethra, stricture of, and gonorrhea, 116
- Urinary troubles, 18
- Urine, 149
- Varicocele, 18
- Vasectomy, 349
- Vedder, cited on prostitution, 120; on syphilis, 123, 124

- Veins, varicose, 18
- Venereal disease, among troops in Philippines, 122; statistics, 122
- Venereal diseases, 119; and arterial degeneration, 156; and the U. S. Army, 121
- Vice and poverty, and feeble-mindedness, 299
- Wage-earners, average annual number of disability days of, 58
- Wallin, cited on feeble-mindedness, 299; on persecution of the feeble-minded, 346; points on distinction between defectiveness and backwardness, 301
- Wassermann test, 113, 115
- Water, and constipation, 406, contaminated, effect on cells, 138; drinking, 188, drinking, effect on kidneys, 149
- Water supply, of Athens, 73; of Egyptians, 72; of Jerusalem, 72; of Rome, 73
- White plague, the, 102
- Williams, quoted on syphilis, 124
- Woodward, cited on bovine tuberculosis, 105
- Wood, Thomas D., quoted on defective school children, 275
- X-ray, and cancer, 98, 99; and gall bladder, 173; and teeth, 16, 173
- Zero family, the, 335

